THE JOURNAL

OF THE

ROYAL AERONAUTICAL SOCIETY

with which is incorporated The Institution of Aeronautical Engineers

INDEX TO VOL. XLII.

ACCIDENTS

International Air Traffic Accidents (Abstract from *Inter. Avia.*, No. 589, 29/10/38, p 9), *J.*, XLII., p. 1124.

ACCUMULATORS, *see* Ignition.

ACOUSTICS

Absorption and Dispersion of Sound in Liquids (Abstract from *Ann. d. Physik*, Vol. 22, No. 3), *J.*, XLII., p. 751.

Efficient Silencer for Pipe Lines (Abstract from *Forschung*, Vol. 8, No. 6), *J.*, XLII., p. 239.

On the Influence of a Resonator upon the Field of Sound (Abstract from *Aer. Res. Inst.*, Report No. 163), *J.*, XLII., p. 857.

Acoustical Insulation Afforded by Double Partitions Constructed from Dissimilar Components (Abstract from *Phil. Mag.*, August, 1938), *J.*, XLII., p. 893.

Decibels and Phons (Abstract from *Nature*, Vol. 141, No. 3562), *J.*, XLII., p. 244.

Soundproofing of Control Cabins for the Aircraft Engines (Abstract from *Génie Civil, III*, 25/12/37), *J.*, XLII., p. 473.

New Measurements of the Velocity of Sound in Free Air (Abstract from *Ann. d. Phys.*, Vol. 31, No. 5), *J.*, XLII., p. 475.

AERODROMES

Smoke Wind Indicators on Landing Grounds (Abstract from *Rev. de l'Arm. de l'Air*, No. 101), *J.*, XLII., p. 233.

Model Experiments on the Site of Rongotai Aerodrome, Wellington, New Zealand, by C. I. Kidson, *J.*, XLII., p. 165.

AERODYNAMICS, *see* Fluid Motion; Gases, Hydrodynamics.

On the Stability of Kármán's Vortex Street (Abstract from *Z.A.M.M.*, Vol. 17, No. 6), *J.*, XLII., p. 229.

Test Stand for the Investigation of Gust Effects (Abstract from *J. Aer. Sci.*, Vol. 5, No. 3), *J.*, XLII., p. 348.

Model Tests on Road and Rail Vehicles, with Special Reference to Testing Under Water (Abstract from *Rendiconti Reale Instituto Lombardo*, No. 70, December, 1937), *J.*, XLII., p. 464.

On the Stability of Vortex Sheets (Abstract from *Rep. Cent. Aero-Hydrodyn. Inst., Moscow*, No. 304), *J.*, XLII., p. 881.

Corner Losses in Ducts. Factors Affecting the Design of Efficient Corners and Leading to a Reduction in Resistance (Abstract from *Airc. Eng.*, Vol. 9, August, 1937), *J.*, XLII., p. 87.

On the Formula for the Velocity Distribution near Walls (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 2, 1937), *J.*, XLII., p. 87.

Investigation of a Flow of Compressible Gas in a Curved Channel (Abstract from *Trans. Cent. Hydrodyn. Inst., Moscow*, No. 302, 1936), *J.*, XLII., p. 880.

On Some Reciprocal Relations in the Theory of Non-Stationary Flow (Abstract from *N.A.C.A. Report No.* 629), *J.*, XLII., p. 881.

Calculation of the Downwash behind Wings (Abstract from *L.F.F.*, Vol. 15, No. 9, 10/9/38, pp. 463-7), *J.*, XLII., p. 1037.

Ground Effect, with Special Reference to Pitching Moments (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 7), *J.*, XLII., p. 741.

Investigation on Outflow Measurements with Sharp Edged Orifices (Abstract from *Forschung*, Vol. 9, No. 3), *J.*, XLII., p. 748.

The Minimum Resistance of High Speed Aircraft (Abstract from *L.F.F.*, Vol. 15, No. 9, September, 1938, pp. 445-62), *J.*, XLII., p. 1037.

New Nozzle Shapes for Low and Medium Reynolds Numbers (Abstract from *Forschung*, Vol. 9, No. 3), *J.*, XLII., p. 747.

Recent Research on the Improvement of the Aerodynamic Characteristics of Aircraft (Abstract from *J. Roy. Aeron. Soc.*, Vol. 42, No. 330), *J.*, XLII., p. 845.

Temperature Measurements of High Speed Gas Currents (Abstract from *Forschung*, Vol. 9, No. 5, Sept.-Oct., 1938, pp. 213-218), *J.*, XLII., p. 1047.

Efflux of Gases through Orifices—Kinetic Theory (Abstract from *J. Frank. Inst.*, Vol. 225, No. 1), *J.*, XLII., p. 229.

Flow in Smooth Straight Pipes at Velocities Above and Below Sound Velocity (Abstract from *Forschung*, Vol. 7, March-April, 1936), *J.*, XLII., p. 467.

The Resistance of Aircraft Radiators taking into Account the Warming Up of the Air (Comparison of Theory and Experiment) (Abstract from *L.F.F.*, Vol. 15, No. 9, 10/9/38, pp. 427-44), *J.*, XLII., p. 1037.

Possibilities of Error in Model Experiments on Vehicle Air Resistance (Abstract from *Z.V.D.I.*, Vol. 82, 19/2/38), *J.*, XLII., p. 622.

Determination of Profile Drag from Measurements in the Wake of a Body (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 6), *J.*, XLII., p. 623.

Increase in Frictional Resistance Caused by Various Types of Rivet Heads as Determined by Tests of Planing Surfaces (Abstract from *N.A.C.A. Tech. Note*, No. 648), *J.*, XLII., p. 624.

The Lift and Moment on a Flat Plate in a Stream of Finite Width (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 166, No. 925), *J.*, XLII., p. 625.

Drag of Cylinders of Simple Shape (Abstract from *N.A.C.A. Report No.* 619), *J.*, XLII., p. 556.

Recent Research on the Improvement of the Aerodynamic Characteristics of Aircraft, by Ernest F. Relf, A.R.C.Sc., F.R.Ae.S., F.R.S., *J.*, XLII., p. 513.

Integrator for Evaluating the Downwash from a Span Load Curve (Abstract from *J. Aer. Sci.*, Vol. 5, No. 4), *J.*, XLII., p. 464.

Problems of High Speed Flight as Affected by Compressibility (Abstract from *J.R. Aer. Soc.*, Vol. 42, No. 327), *J.*, XLII., p. 464.

Experimental Method for Studying Aerodynamic Ground Effect (Abstract from *Comp. Rend.*, Vol. 206, No. 11), *J.*, XLII., p. 466.

Investigation of Wave Phenomena on Models Using Ultra Sonic Waves (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 11-12), *J.*, XLII., p. 571.

Problems of High Speed Flight as Affected by Compressibility, by C. N. H. Lock, M.A., F.R.Ae.S., *J.*, XLII., p. 193.

Contribution to the Theory of the Cowled Radiator Installation Functioning with Heat Input (Abstract from *L.F.F.*, Vol. 15, No. 10-11, October 10th, 1938, pp. 500-504), *J.*, XLII., p. 1125.

Investigation of a Radiator in the Wing of an Aeroplane (Abstract from *Centr. Aero-Hydrodynamic Inst., Moscow, Tech. Note*, No. 147, 1937), *J.*, XLII., p. 1125.

Operational Treatment of the Non-Uniform Lift Theory in Aeroplane Dynamics (Abstract from *N.A.C.A. Tech. Note*, No. 667), *J.*, XLII., p. 1120.

Blade Interaction in Axial Flow Turbines (Abstract from *Tech. Moderne*, Vol. 30, pp. 410-414), *J.*, XLII., p. 1120.

Thermal Effects on Bodies in an Air Stream (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 168, No. 932), *J.*, XLII., p. 1119.

AERODYNAMICS—BOUNDARY LAYER

Flight Experiments on the Boundary Layer (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 3), *J.*, XLII., p. 348.

On the Solution of Laminar Boundary Layer Equations (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 164, No. 919), *J.*, XLII., p. 351.

Note on Some Accelerated Boundary Layer Velocity Profiles (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 8), *J.*, XLII., p. 843.

Manipulation of the Boundary Layer, by E. G. Richardson, B.A., Ph.D., D.Sc., *J.*, XLII., p. 816.

Laminar Boundary Layer Investigations Based on the Theorem of Minimum Dissipation (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 7), *J.*, XLII., p. 738.

Universal Logarithmic Law of Velocity Distribution as Applied to the Investigation of Boundary Layer and Drag of Streamlined Bodies at Large Reynolds Number (Abstract from *Central Aero-Hydrodynamic Institute Report No.* 257, *Moscow*, 1937), *J.*, XLII., p. 230.

Boundary Layer in Compressible Fluids (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 6), *J.*, XLII., p. 623.

AERODYNAMICS—INTERFERENCE

Interference and Interaction from the Designer's Point of View (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 8), *J.*, XLII., p. 846.

Interference of Wing and Fuselage from Tests of 17 Combinations in the N.A.C.A. Variable Density Tunnel Combinations with Special Junctures (Abstract from *N.A.C.A. Tech. Note*, No. 641), *J.*, XLII., p. 558.

Interference of Wing and Fuselage from Tests of Eight Combinations in the N.A.C.A. Variable Density Tunnel Combinations with Tapered Fillets and Straight Side Junctures (Abstract from *N.A.C.A. Tech. Note*, No. 642), *J.*, XLII., p. 559.

Interference of Wing and Fuselage from Tests of 18 Combinations in the N.A.C.A. Variable Density Tunnel Combinations with Split Flaps (Abstract from *N.A.C.A. Tech. Note*, No. 640), *J.*, XLII., p. 470.

AERODYNAMICS—TURBULENCE

Application of the Modified Vorticity Transport Theory to the Turbulent Spreading of a Jet of Air (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 165, No. 920), *J.*, XLII., p. 465.

Experimental Determination of the Spectrum of Turbulence (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 165, No. 920), *J.*, XLII., p. 465.

On the Velocity and Temperature Distribution in the Turbulent Wake behind a Heated Body of Revolution (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 165, No. 920), *J.*, XLII., p. 465.

Effect of the Viscosity of Liquid Upon the Laws of Turbulent Flow in a Straight Cylindrical Pipe with Smooth Walls (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 8, 1937), *J.*, XLII., p. 88.

Review of the Modern Semi-Empirical Theories of Turbulence (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 8, 1937), *J.*, XLII., p. 89.

On the Statistical Theory of Isotropic Turbulence (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 164, No. 917), *J.*, XLII., p. 349.

On the Velocity and Temperature Distributions in the Turbulent Wake behind a Heated Body (Abstract from *Proc. Camb. Phil. Soc.*, Vol. 34, Part I), *J.*, XLII., p. 350.

Spectrum of Turbulence (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 164), *J.*, XLII., p. 350.

AEROFOILS

Aerodynamic Characteristics of a Large Number of Aerofoils Tested in the Variable Density Wind Tunnel (Abstract from *N.A.C.A. Report No.* 628), *J.*, XLII., p. 1120.

Aerofoil Section Characteristics as Applied to the Prediction of Air Forces and Their Distribution on Wings (Abstract from *N.A.C.A. Report No.* 631), *J.*, XLII., p. 1120.

Airfoil Theory for Non-Uniform Motion (Abstract from *J. Aer. Sci.*, August, 1938), *J.*, XLII., p. 880.

Approximate Determination of Coefficients B_n and C_{nk} in Aerofoil Design by the Lotz Method (Abstract from *Aeron. Eng. (U.S.S.R.)*, No. 9, September, 1937), *J.*, XLII., p. 174.

Calculation of the Critical Velocity for the Two-Dimensional Case of an Aerofoil Fitted with Aileron (Abstract from *L.F.F.*, Vol. 15, No. 8), *J.*, XLII., p. 882.

Compressible Flow About Symmetrical Joukowski Profiles (Abstract from *N.A.C.A. Report No.* 621), *J.*, XLII., p. 624.

Eddy Resistance of Theoretical Aerofoils (Abstract from *Rept. Centr. Aero-Hydrodyn. Inst., Moscow*, No. 317, 1937), *J.*, XLII., p. 881.

The Experimental and Calculated Characteristics of 22 Tapered Wings (Abstract from *N.A.C.A. Report No.* 627, 1938), *J.*, XLII., p. 1038.

Extension of the New Family of Wing Profiles (Abstract from *Phil. Mag.*, Vol. 24, No. 105), *J.*, XLII., p. 176.

On the Field of Flow Round a Thin Slightly Curved Aerofoil (Abstract from *Z.A.M.M.*, Vol. 18, No. 2), *J.*, XLII., p. 622.

General Aerodynamical Criterion and its Application to the Determination of Optimum Wing Parameters (Abstract from *Aeron. Eng. (U.S.S.R.)*, No. 8, August, 1937), *J.*, XLII., p. 173.

Simple Method for Determining the Aerodynamic Centre of an Aerofoil (Abstract from *J. Aer. Sci.*, Vol. 5, No. 4), *J.*, XLII., p. 463.

Tests of Related Forward Camber Aerofoils in the Variable Density Wind Tunnel (Abstract from *N.A.C.A. Report No.* 610), *J.*, XLII., p. 175.

Tests of N85, N86 and N87 Aerofoil Sections in the Eleven-inch High Speed Wind Tunnel (Abstract from *N.A.C.A. Tech. Note*, No. 665), *J.*, XLII., p. 1122.

Theory of Two-Dimensional Potential Flow Round an Arbitrary Aerofoil (Abstract from *Ing.-Arch.*, Vol. 9, No. 3), *J.*, XLII., p. 844.

Two-Dimensional Hydrodynamical Theory of Moving Aerofoils—II (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 164, No. 918), *J.*, XLII., p. 230.

Variation of Reynolds Number of Pressure Distribution Over an Aerofoil Section (Abstract from *N.A.C.A. Report No.* 613), *J.*, XLII., p. 463.

Wing Profiles under Conditions of Imperfect Lift (Abstract from *L.F.F.*, Vol. 15, No. 8), *J.*, XLII., p. 881.

AEROFOILS—FLAPS

Pressure Distribution Over Aerofoils with Fowler Flaps (Abstract from *N.A.C.A. Report No.* 620), *J.*, XLII., p. 624.

Pressure Distribution Over an N.A.C.A. 23,012 Aerofoil with an N.A.C.A. 23,012 External Aerofoil Flap (Abstract from *N.A.C.A. Report No.* 614), *J.*, XLII., p. 231.

Pressure Distribution Over a Clark Y-H Aerofoil Section with a Split Flap (Abstract from *N.A.C.A. Tech. Note*, No. 627), *J.*, XLII., p. 230.

Pressure Distribution over an N.A.C.A. 23012 Aerofoil with a Slotted and a Plain Flap (Abstract from *N.A.C.A. Report No* 633), *J.*, XLII., p. 1121.

The Effect of Partial Span Plain Flaps on the Aerodynamic Characteristics of a Rectangular and a Tapered Clark Y Wing (Abstract from *N.A.C.A. Tech. Note*, No. 663, September, 1938), *J.*, XLII., p. 1039.

Study of Available Flap Data (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 8), *J.*, XLII., p. 846.

Wind Tunnel Tests of a Clark Y Wing having Split Flaps with Gaps (Abstract from *N.A.C.A. Tech. Note*, No. 650), *J.*, XLII., p. 627.

Wind Tunnel Investigation of Rectangular and Tapered N.A.C.A. 23,012 Wings with Plain Ailerons and Full-Span Split Flaps (Abstract from *N.A.C.A. Tech. Note*, No. 661, August, 1938), *J.*, XLII., p. 1038.

Wind Tunnel Investigation of Rectangular and Tapered N.A.C.A. 23,012 Wings with Plain Ailerons and Full-Span Split Flaps (Abstract from *N.A.C.A. Tech. Note*, No. 661, August, 1938), *J.*, XLII., p. 1038.

Wind Tunnel Investigations of Tapered Wings with Ordinary Ailerons and Partial Span Split Flaps (Abstract from *N.A.C.A. Report No.* 611), *J.*, XLII., p. 176.

AEROPLANES

Dollar Values in Airplane Design (Abstract from *J. Aeron. Sci.*, Vol. 4, February, 1937), *J.*, XLII., p. 617.

Large Aeroplanes, by H. Roxbee Cox, Ph.D., D.I.C., B.Sc., F.R.Ae.S., *J.*, XLII., p. 591.

New Oxygen Mask Tested by North-West Air Lines (U.S.A.) (Abstract from *American Aviation*, Vol. 2, No. 6, 15/8/38, p. 15), *J.*, XLII., p. 1048.

Progress in Aircraft Design and Efficiency (Abstract from *Engineering*, Vol. 146, No. 3797, 21/10/38, p. 472), *J.*, XLII., p. 1123.

AEROPLANES—CONSTRUCTION

Methods of Solving Special Geometric Problems in Connection with Aircraft Design, by H. E. Chaplin, A.F.R.Ae.S., *J.*, XLII., p. 1088.

AEROPLANES—CONTROL

Effect of Propeller Slipstream on Wings and Tail Surfaces (Abstract from *L.F.F.*, Vol. 15, No. 4), *J.*, XLII., p. 845.

Flight Investigation of the Reduction of Aileron Operating Force by means of Fixed Tabs and Differential Linkage with Notes on Linkage Design (Abstract from *N.A.C.A. Tech. Note*, No. 653), *J.*, XLII., p. 742.

Improvement of Aileron Effectiveness by the Prevention of Air Leakage through the Hinge Gap as Determined in Flight (Abstract from *N.A.C.A. Tech. Note*, No. 632), *J.*, XLII., p. 232.

Investigation of the Effect of the Propeller Slipstream on the Downwash and the Elevator Efficiency (Abstract from *L.F.F.*, Vol. 15, No. 1/2), *J.*, XLII., p. 231.

Maximum Forces Applied by Pilots to Wheel Type Controls (Abstract from *N.A.C.A. Tech. Note*, No. 623), *J.*, XLII., p. 176.

Measurement of Aileron and Flap Moments in Flight (Abstract from *L.F.F.*, Vol. 15, No. 8), *J.*, XLII., p. 886.

Method for Investigating a Wing with Ailerons (Abstract from *Centr. Aero-Hydrodynamic Inst., Moscow, Tech. Note*, No. 146, 1937), *J.*, XLII., p. 1123.

Résumé and Analysis of N.A.C.A. Lateral Control Research (Abstract from *N.A.C.A. Report No.* 605), *J.*, XLII., p. 89.

A Radio Control System for Model Aircratt (Abstract from *The Aero Modeller*, Vol. 111, No. 33), *J.*, XLII., p. 858.

Wind Channel Tests on Aerodynamic Brakes (Abstract from *L.F.F.*, Vol. 15, No. 1/2), *J.*, XLII., p. 231.

Wind Tunnel and Flight Tests of Slot-Lip Ailerons (Abstract from *N.A.C.A. Report No.* 602), *J.*, XLII., p. 91.

Wind Tunnel Tests of Three Lateral Control Devices in Combination with a Full-Span Slotted Flap on an N.A.C.A. 23,012 Airfoil (Abstract from *N.A.C.A. Tech. Note*, No. 659), *J.*, XLII., p. 884.

AEROPLANES—FUSELAGES

Structural and Mechanical Problems Involved in Pressure (Supercharged) Cabin Design (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 5), *J.*, XLII., p. 469.

AEROPLANES—MILITARY

Activities of the U.S. Army Air Corps during 1937 (Abstract from *Inter. Avia*, No. 526, 16/3/38), *J.*, XLII., p. 468.

The Composition of the Russian Air Force (Abstract from *Luftwehr*, July, 1938), *J.*, XLII., p. 877.

Multiplicity in Armament Types (Abstract from *Rev. de l'Arm. de l'Air*, No. 102, January, 1938, pp. 40-58), *J.*, XLII., p. 1033.

Some Contracts placed by the U.S. Army Air Corps in 1937 (Abstract from *Rev. de l'Armee de l'Air*, No. 105, April, 1938), *J.*, XLII., p. 620.

AEROPLANES—PERFORMANCE

Aeroplane Performance Slide Rule (Abstract from *J. Aer. Sci.*, Vol. 5, No. 1), *J.*, XLII., p. 183.

Aircraft Efficiencies (Abstract from *The Engineer*, Vol. 165, No. 4290), *J.*, XLII., p. 469.

Comparative Flight and Full Scale Wind Tunnel Measurements of the Maximum Lift of an Aeroplane (Abstract from *N.A.C.A. Report No.* 619), *J.*, XLII., p. 559.

Effect of Ground on the Aerodynamic Characteristics of a Monoplane Wing (Abstract from *Aer. Res. Inst., Tokio*, Rep. No. 156), *J.*, XLII., p. 88.

The Effect of Wing Loading on the Design of Modern Aircraft with Particular Regard to the Take-off Problem, by H. F. Vessey, B.Sc., A.F.R.Ae.S., *J.*, XLII., p. 369.

Flight and Wind Tunnel Tests of an XBM-1 Dive Bomber (Abstract from *N.A.C.A. Tech. Note*, No. 644), *J.*, XLII., p. 625.

Flight Tests of an Aeroplane showing Dependence of the Maximum Lift Coefficient on the Test Conditions (Abstract from *N.A.C.A. Tech. Note*, No. 622), *J.*, XLII., p. 92.

Flight Tests and Flying Qualities of Zah I—25 Aircraft (Abstract from *Aeronautical Engineering, U.S.S.R.*, No. 1, January, 1938, pp. 9-24) (Translation available), *J.*, XLII., p. 1038.

Further Studies of the Ground Effect on the Aerodynamic Characteristics of an Aeroplane, with Special Reference to Tail Moment (Abstract from *Aer. Res. Inst., Tokio*, Report No. 158, November, 1937), *J.*, XLII., p. 229.

German Air Speed Record (Abstract from *Les Ailes*, No. 857, 18/11/37), *J.*, XLII., p. 90.

High Wing Loading and Some of Its Problems from the Pilots' Point of View, by Squadron-Leader H. P. Fraser, A.F.C., B.A., A.F.R.Ae.S., R.A.F., *J.*, XLII., p. 405.

Performance Calculations on the Koken Long-Range Monoplane (Abstract from *Aer. Res. Inst., Tokio*, Report No. 166, August, 1938, pp. 300-85), *J.*, XLII., p. 1040.

Range and Take-off Calculations for Plane with Continuously Controllable Pitch Propellers (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 11, September, 1938, pp. 436-441), *J.*, XLII., p. 1039.

Special Problems Connected with the Take-off and Landing of Aircraft (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 8), *J.*, XLII., p. 846.

Some Aspects of the Stalling of Modern Low-Wing Monoplanes (Abstract from *N.A.C.A. Tech. Note*, No. 645), *J.*, XLII., p. 625.

Some Problems in the Design of High Speed Aircraft (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 7), *J.*, XLII., p. 740.

Transition Phase in the Take-off of an Aeroplane (Abstract from *N.A.C.A. Report No.* 628), *J.*, XLII., p. 847.

Wind Tunnel Tests of a Two-Engine Aeroplane Model as a Preliminary Study to Flight Conditions Arising Out of the Failure of One Engine (Abstract from *N.A.C.A. Tech. Note*, No. 646), *J.*, XLII., p. 626.

AEROPLANES—SPINNING

Spinning Characteristics of the XN2Y-1 Airplane Obtained from the Spinning Balance and Compared with Results from the Spinning Tunnel and from Flight Tests (Abstract from *N.A.C.A. Report No.* 607), *J.*, XLII., p. 91.

Wind Tunnel Investigations of Aeroplane Spin, taking into Account the Radius of Rotation (Abstract from *Trans. Centr. Aero-Hydrodyn. Inst., Moscow*, No. 260), *J.*, XLII., p. 884.

AEROPLANES—STABILITY

Aileron Hinge Moments Utilised to Ensure Automatic Stability (Abstract from *Les Ailes*, No. 884, 26/5/38), *J.*, XLII., p. 627.

Assumed Loads Due to Aerodynamic Forces on Aircraft (Abstract from *Book by G. Siegel*, 1938, *Germany*), *J.*, XLII., p. 885.

On the Dynamics of Symmetrical Flight of an Aeroplane (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 6, 1937), *J.*, XLII., p. 90.

Effect of Shape of Wing on the Distribution of Load Along the Span and on the Longitudinal Stability (Abstract from *Rept. Centr. Aero-Hydrodyn. Inst.*, No. 335, 1937), *J.*, XLII., p. 885.

Estimation of the Rate of Change of Yawing Moment with Side-Slip (Abstract from *N.A.C.A. Tech. Note*, No. 636), *J.*, XLII., p. 467.

Free-Spinning Wind Tunnel Tests of a Low Wing Monoplane with Systematic Changes in Wings and Tails. II. Mass Distributed Along the Fuselage (Abstract from *N.A.C.A. Tech. Note*, No. 630), *J.*, XLII., p. 231.

Longitudinal Stability in Relation to the Use of an Automatic Pilot (Abstract from *N.A.C.A. Tech. Note*, No. 666, September, 1938), *J.*, XLII., p. 1122.

Free-Spinning Wind Tunnel Tests of a Low Wing Monoplane with Systematic Changes in Wings and Tails. III. Mass Distribution Along the Wings (Abstract from *N.A.C.A. Tech. Note*, No. 664), *J.*, XLII., p. 1122.

Model Balance for the Rapid Determination of the C.G. of Aircraft (Abstract from *De Havilland Gazette*, No. 10, 1938), *J.*, XLII., p. 352.

Several New Problems in the Theory of Wing Flutter (Abstract from *Aeron. Eng. (U.S.S.R.)*, No. 6, June, 1937), *J.*, XLII., p. 177.

Spinning Characteristics of Wings. IV. Changes in Stagger of Rectangular Clark Y Biplane Cellules (Abstract from *N.A.C.A. Tech. Note*, No. 625), *J.*, XLII., p. 177.

Theoretical Study of the Motion of Aeroplanes Following Initial Disturbances (Abstract from *Bulletin du Service Technique de l'Aeronautique*, No. 17, June, 1937), *J.*, XLII., p. 354.

Theoretical Study of Various Aeroplane Motions after Initial Disturbance (Abstract from *Bull. du Service Technique de l'Aeron.*, June, 1937), *J.*, XLII., p. 883.

Wind Tunnel Tests on a Low Wing Monoplane with Propeller Running; Longitudinal and Directional Stability, Elevator Hinge Moments (Abstract from *J. Aer. Sci.*, Vol. 5, No. 4), *J.*, XLII., p. 468.

AEROPLANES—STRENGTH OF

Instability of Monocoque Structures in Pure Bending, by N. J. Hoff, *J.*, XLII., p. 291.

Notes on the U.S.S.R. Aircraft Strength Specifications (Abstract from *d'Aerophile*, Vol. 45, No. 5), *J.*, XLII., p. 175.

Tables of Stiffness and Carry-Over Factor for Structural Members under Aerial Load (Abstract from *N.A.C.A. Tech. Note*, No. 652, June, 1938), *J.*, XLII., p. 751.

AEROPLANES—UNDERCARRIAGES

Study of the Design Conditions for Tricycle Landing Gear (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 1), *J.*, XLII., p. 740.

Theoretical and Experimental Basis for Research and Development of Undercarriage Springs (Abstract from *L.F.F.*, Vol. 14, No. 8), *J.*, XLII., p. 89.

AEROPLANES—WINGS

Spinning Characteristics of Wings. V. N.A.C.A. 0009, 23018 and 6718 Monoplane Wings (Abstract from *N.A.C.A. Tech. Note*, No. 633), *J.*, XLII., p. 352.

The Torsion of a Two-Spar Pyramidal Wing with Closely Placed Ribs of Great Stiffness in Flexure (Abstract from *Rept. Centr. Aero-Hydrodyn. Inst.*, No. 292, 1937), *J.*, XLII., p. 889.

Wing Flutter when Taking into Account the Vibrations in the Direction of Greatest Stiffness (Abstract from *Rept. Centr. Aero-Hydrodyn. Inst., Moscow*, No. 340, 1937), *J.*, XLII., p. 886.

AERO SHOWS

Aircraft Display at the Nuremberg Rally (Abstract from *Les Ailes*, No. 901, 22/9/38, p. 5), *J.*, XLII., p. 1044.

Flying Display at Touchino (Abstract from *Les Ailes*, 8/9/38), *J.*, XLII., p. 878.

AIR FORCES

Italian Views on the German Air Force (Abstract from *Inter. Avia*, No. 561), *J.*, XLII., p. 841.

The Air Force Ground Personnel and Flying Personnel (Abstract from Vol. 11 and 12, Air Force Series, 1938), *J.*, XLII., p. 1117.

Organisation of Italian Air Force (Abstract from *Luftwehr*, June, 1938), *J.*, XLII., p. 1116.

AIRSCREWS

Aerodynamic Considerations Affecting Propellers for Large Engines (Abstract from *J.S.A.E.*, Vol. 42, No. 7), *J.*, XLII., p. 849.

Aerofoil Sections in Screw Propellers (Abstract from *Trans. of N.E.C. Inst. of E. and S.*, 31/3/38), *J.*, XLII., p. 621.

Aircraft Propellers of the Future (Abstract from *J.S.A.E.*, Vol. 43, No. 4, October, 1938, p. 426), *J.*, XLII., p. 1122.

The Effect of Cavitation on the Operation of the Voith-Schneider Propeller (Abstract from *Z.V.D.I.*, 14/5/38, pp. 566-8; *Eng. Absts.*, Vol. 1, No. 8, Section 2, August, 1938, p. 126), *J.*, XLII., p. 1037.

Full Feathering Propellers (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 7), *J.*, XLII., p. 740.

Full-Scale Static Propeller Characteristics (Abstract from *J. Aer. Sci.*, Vol. 5, No. 1), *J.*, XLII., p. 176.

Interaction of a Fixed Propeller with an Aerofoil (Abstract from *Comp. Rend.*, Vol. 206, No. 20), *J.*, XLII., p. 738.

Method of Harmonic Analysis. A Study of the Rotational Frequencies of Screw Propellers (Abstract from *Phil. Mag.*, Vol. 25, No. 168), *J.*, XLII., p. 362.

Moments, Centrifugal Force and the Variable Pitch Propeller (Abstract from *Schweiz. Banztg.*, Vol. 111, 1938), *J.*, XLII., p. 884.

Practical Airscrew Performance Calculations, by F. M. Thomas, F. W. Caldwell and T. B. Rhines, *J.*, XLII., p. 5.

Propeller Efficiencies at High Flying Speeds (Abstract from *L.F.F.*, Vol. 15, No. 7), *J.*, XLII., p. 882.

Propeller Factors Tending to Limit Aircraft Engine Powers (Abstract from *J.S.A.E.*, Vol. 42, No. 7), *J.*, XLII., p. 849.

Propeller Problems Imposed by Stratosphere Flight (Abstract from *J.S.A.E.*, Vol. 42, No. 7), *J.*, XLII., p. 847.

Simplified Propeller Calculations (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 9), *J.*, XLII., p. 848.

Theory of the Hele-Shaw Experiment (Abstract from *Z.A.M.M.*, Vol. 18, No. 2), *J.*, XLII., p. 622.

Torsion and Torsional Oscillations of Blades (Abstract from *Trans. of N.E.C. Inst. of E. and S.*, 31/3/38), *J.*, XLII., p. 631.

AIRSHIPS, *see* also Gases.

Operating Technique on Helium Filled Airships (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 3), *J.*, XLII., p. 353.

The Present Status of Airship Construction, especially of Airship Framing Construction (Abstract from *Z.F.M.*, Vol. 24, Nos. 11 and 12, 6 and 22/6/33) (Available as Translation T.M. No. 872), *J.*, XLII., p. 1039.

Pressure Distribution Measurements at Large Angles of Pitch on Fins of Different Span-Chord Ratio on a 1/40 Scale Model of the U.S. Airship "Akron" (Abstract from *N.A.C.A. Report No.* 604), *J.*, XLII., p. 91.

Stress Model of a Complete Airship Structure (Abstract from *J. App. Mech.*, Vol. 5, No. 2), *J.*, XLII., p. 741.

Water Tank Model Tests on the Motion of Airships in Gusts (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 6), *J.*, XLII., p. 623.

AIR TRANSPORT, *see* Civil Aviation.

ALUMINIUM, *see* Materials—Aluminium

ARMAMENT, *see* also Bombs and Ballistics; Warfare, aerial.

Aircraft Cannons (Abstract from *Rev. de l'Arm. de l'Air*, No. 111, October, 1938), *J.*, XLII., p. 1118.

Anti-Aircraft Artillery (Abstract from *Service in the Air Force Series*, Vol. 13, 1938), *J.*, XLII., p. 1117.

Armament Patents Purchased by the Junkers Firm (Abstract from *Rev. de l'Arm. de l'Air*, No. 105, April, 1938), *J.*, XLII., p. 619.

Comparative Performance of Automatic Guns (Abstract from *W.T.M.*, Vol. 41, No. 11), *J.*, XLII., p. 178.

Defensive Armament of General Purpose Aircraft and the Offensive Armament of the Intercepter Fighter (Abstract from *Rev. de l'Arm. de l'Air*, No. 104, March, 1938), *J.*, XLII., p. 735.

High Explosive Shell (Artillery) (Abstract from *Z.V.D.I.*, Vol. 82, No. 30), *J.*, XLII., p. 842.

Improvements in Aircraft Cannons (Abstract from *Rev. de l'Arm. de l'Air*, No. 100, November, 1937), *J.*, XLII., p. 179.

Machine Gun Operation by Means of Compressed Air for Training Purposes (Abstract from *W.T.M.*, Vol. 42, No. 5), *J.*, XLII., p. 737.

Machine Gun Installation on Ground Attack Aircraft (Abstract from *Luftwehr*, Vol. 5, No. 1), *J.*, XLII., p. 347.

Munitions Manufacture (Abstract from *Z.V.D.I.*, Vol. 82, 1/1/38), *J.*, XLII., p. 554.

Most Recent Development in Machine Guns Outside Germany (Abstract from *W.T.M.*, Vol. 41, No. 4), *J.*, XLII., p. 234.

New Night Fire Control Apparatus for A.A. Artillery (Abstract from *Luftwehr*, Vol. 5, No. 6), *J.*, XLII., p. 842.

The "Oerlikon" Cannon Mounting for Aircraft (Abstract from *W.T.M.*, Vol. 42, No. 9, September, 1938, pp. 411-415), *J.*, XLII., p. 1035.

Optical Studies of the Motion of Machine Guns when Firing (Abstract from *Luftwissen*, Vol. 5, No. 2), *J.*, XLII., p. 348.

Bofors Rapid Fire 40 m.m. Anti-Aircraft Gun (Abstract from *U.S. Naval Institute Proceedings*, Vol. 63, No. 147), *J.*, XLII., p. 92.

Sights Employed in Anti-Aircraft Gunnery (Abstract from *Eng. Absts.*, Vol. 1, No. 1), *J.*, XLII., p. 461.

Synchronised Control Gear for Rigid Machine Gun on Aircraft (Abstract from *Luftwissen*, Vol. 4, No. 12), *J.*, XLII., p. 179.

ASSISTED TAKE-OFF, *see* Catapults.

ATMOSPHERE, *see* Meteorology.

AUTOMATIC PILOT, *see* Aeroplanes—Stability.

BALLOONS

Balloon Barrages. Based on an Article in Bulletin Belge des Sciences Militaires (Abstract from *Luftwehr*, Vol. 5, No. 8, August, 1938, pp. 332-336), *J.*, XLII., p. 1036.

New Developments in Hot Air Balloons (Abstract from *Luftwelt.*, Vol. 2, No. 12), *J.*, XLII., p. 92.

BIRD FLIGHT

Air Flow Round a Bird in Flight—Simultaneous Cinematographic Records in Three Planes at Right Angles to Each Other (Abstract from *Comp. Rend.*, Vol. 206, No. 6), *J.*, XLII., p. 351.

Flight Speed of Birds (Abstract from *United States Department of Agriculture Circular* No. 428, May, 1937), *J.*, XLII., p. 243.

A Study of the Wing-Beats of Pigeons in Flight, by G. Guidi, *J.*, XLII., p. 1104.

BLUCKE, SQUADRON LEADER, R. S., A.F.C.

The Practical Use of Radio as a Direct Aid to the Landing Approach in Conditions of Low Visibility, *J.*, XLII., p. 483.

BOMBS AND BALLISTICS, *see* also Armaments; Warfare aerial.

Application of Statistical Analysis to Ballistic Problems (Abstract from *Revue d'Artillerie*, December, 1937), *J.*, XLII., p. 876.

Ballistic Characteristics of Aircraft Bombs (Abstract from *De Ingenieur in Nederlandsch-Indie*, No. 12, 1936), *J.*, XLII., p. 93.

Choice of Calibre for A.A. Artillery (Abstract from *Rev. de l'Arm. de l'Air*, No. 105, April, 1938), *J.*, XLII., p. 620.

Device for Increasing the Muzzle Velocity of Shells (Abstract from *Rev. de l'Arm. de l'Air*, No. 100, November, 1937), *J.*, XLII., p. 179.

The Effect of Projectiles and Bombs on Concrete (Abstract from *Z.g.S.S.*, Vol. 33, No. 5, May, 1938, pp. 141-142), *J.*, XLII., p. 1036.

Formulation of the Resistance Laws of Projectiles (Abstract from *W.T.M.*, Vol. 42, No. 9, September, 1938, pp. 397-411), *J.*, XLII., p. 1035.

Improvements in the Design of Aircraft Bombs (Abstract from *Rev. de l'Arm. de l'Air*, No. 101, December, 1937), *J.*, XLII., p. 235.

New Type of Aerial Mine (Abstract from *U.S. Nav. Inst. Proc.*, Vol. 64, No. 5), *J.*, XLII., p. 618.

Shock Wave and Explosion Productions from Detonating Explosives (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 163, No. 915), *J.*, XLII., p. 178.

BOUNDARY LAYER, *see* Aerodynamics—Boundary Layer.

BRAKES—AERODYNAMIC, *see* Aeroplanes Control.

BUXTON, SQUADRON LEADER, G. M., R.A.F.

Development of Sailplanes, *J.*, XLII., p. 653.

CABINS, *see* Aeroplanes—Fuselages.

CALDWELL, F. W., F. M. THOMAS and T. B. RHINES

Practical Airscrew Performance Calculations, *J.*, XLII., p. 5.

CARBURETTORS, *see* Engines—Carburettors.

CATAPULTS

Development of the Catapult by the Heinkel Aircraft Works (Abstract from *L.F.F.*, Vol. 15, No. 1/2), *J.*, XLII., p. 232.

Floating Islands, Catapult Ships Pick-a-Back Aircraft (Abstract from *No.* 25 *of Handbooks for the Aircraft Constructor, Munich*), *J.*, XLII., p. 885.

CHAPLIN, H. E.

Methods of Solving Special Geometric Problems in Connection with Aircraft Design, *J.*, XLII., p. 1088.

CIVIL AVIATION

Engineering Aspects of Commercial High Altitude Flying, by Professor J. E. Younger, *J.*, XLII., p. 1055.

Income and Subsidies of Various European Air Lines (Abstract from *l'Aerophile*, Vol. 46, No. 7), *J.*, XLII., p. 848.

North Atlantic Air Service — London-Montreal (Abstract from *The Engineering Journal*, Vol. 20, No. 8), *J.*, XLII., p. 354.

Plotted Transport Flight Plan (Abstract from *J.S.A.E.*, Vol. 43, No. 4, October, 1938, p. 20), *J.*, XLII., p. 1129.

Statistical and Technical Review for 1937 (Abstract from *The Engineer*, Vol. 166, No. 4317, 7/10/38, p. 379), *J.*, XLII., p. 1041.

Transport Comparison—Comparative Table of Efficiency of Various Makes of Civil Aircraft (Abstract from *Flight*, Vol. 33, No. 1515), *J.*, XLII., p. 177.

COMPRESSION-IGNITION ENGINES, *see* Engines—Heavy Oil.

CONTROL, REMOTE, *see* Remote Control.

COOLING, *see* Engines—Cooling.

CORRESPONDENCE

Weyl, A. R., *J.*, XLII., p. 755.

Gray, W. E., *J.*, XLII., p. 917.

Needham, C. H. Latimer, *J.*, XLII., p. 865.

Buxton, Sqdn.-Ldr. G. M., *J.*, XLII., p. 866.

Hele-Shaw, H. S., *J.*, XLII., p. 1147.

CORROSION, *see* Materials—Corrosion.

COPPER, *see* Materials—Copper.

COWLING—ENGINE, *see* Engines—Cooling.

COX, H. ROXBEE, Ph.D., D.I.C., B.Sc., F.R.Ae.S.

Large Aeroplanes, *J.*, XLII., p. 591.

CRAIG, J. DONALDSON

Anodic Oxidation of Aluminium and Its Alloys, *J.*, XLII., p. 603.

CRANKSHAFTS, *see* Engines—Crankshafts.

DE-ICING, *see* also Meteorology.

Ice Accretion on Aircraft—Notes for Pilots (Abstract from *Met. Office Prof. Notes*, No. 82, 1937), *J.*, XLII., p. 102.

Icing Problem on Aircraft (Abstract from *Pub. Sci. et Tech. du Ministere de l'Air, B.S.T.*, No. 78), *J.*, XLII., p. 847.

Icing-up of Aircraft (Abstract from *Z.V.D.I.*, Vol. 82, No. 7), *J.*, XLII., p. 352.

Mechanical De-Icer (Abstract from *Les Ailes*, No. 872), *J.*, XLII., p. 353.

Some Remarks on the Physical Aspects of the Aircraft Icing Problem (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 11, September, 1938, pp. 442-6), *J.*, XLII., p. 1047.

Temperature Distribution on an Aircraft Wing: Application to the Problem of De-Icing (Abstract from *Publ. Sci. Tech. Ministere de l'Air*, No. 119, 1938), *J.*, XLII., p. 884.

DETONATION, *see* Fuels.

DIESEL ENGINES, *see* Engines—Heavy Oil.

DOWNWASH, *see* Aerodynamics; Aeroplanes—Control.

DRAG, *see* Aerodynamics.

ELECTRIC APPARATUS

Electrical Apparatus on Aircraft (Abstract from *E.T.Z.*, 7/4/38), *J.*, XLII., p. 565.

Electrical Installations on Board Aircraft (Abstract from *E.T.Z.*, Vol. 59, No. 14, 7/4/38, pp. 361-6) (Available as Translation No. 725), *J.*, XLII., p. 1050.

Electric Testing Installations for the Development of Aero Engines (Abstract from *Metropolitan Vickers Tech. News Bulletin*, No. 610), *J.*, XLII., p. 849.

Impulse Apparatus (Abstract from *E.T.Z.*, 15/9/38, pp. 981-4; *Metropolitan Vickers Tech. News Bulletin*, No. 627, 23/9/38, p. 12), *J.*, XLII., p. 1046.

Wear of Electrical Contact Points (Abstract from *J. Inst. Elec. Eng.*, Vol. 82, No. 498), *J.*, XLII., p. 748.

ELECTRICITY AND MAGNETISM

Brushes of Electric Machines (Abstract from *Metropolitan Vickers Tech. News Bulletin*, No. 619), *J.*, XLII., p. 857.

Effect of Change of Temperature on the Strength of Permanent Magnets, with Special Reference to Magnet Steels (Abstract from *J. Inst. Elec. Engineers*, Vol. 81, No. 492), *J.*, XLII., p. 188.

Electrical Character of the Spark Discharge of Automotive Ignition Systems (Abstract from *Bur. Stan. J. Res.*, Vol. 19, No. 4), *J.*, XLII., p. 94.

Reference Tables for Iron-Constantan and Copper-Constantan Thermocouples (Abstract from *Bur. Stan. J. Res.*, Vol. 20, No. 3), *J.*, XLII., p. 566.

Some Fundamental Factors in the Design of Permanent Magnets (Abstract from *Post Office Engineering Dept., Library Circular*, Vol. 15, No. 5), *J.*, XLII., p. 858.

ENGINES, *see* also Electric Apparatus, Fuels.

The Accessory Drive Problem of Aircraft Engines (Abstract from *J.S.A.E.*, Vol. 42, No. 5), *J.*, XLII., p. 628.

Accessory Knock Suppressors (Abstract from *J.S.A.E.*, Vol. 43, No. 4, October, 1938, p. 18), *J.*, XLII., p. 1126.

Aero Engine Working Hour Counter "Peravia" (Abstract from *Inter. Avia*, No. 547, 28/5/38), *J.*, XLII., p. 743.

Buchi Turbo Charging (Abstract from *Metropolitan Vickers Tech. News Bulletin*, No. 620), *J.*, XLII., p. 850.

Combustion Pressures in Spark Ignition Engines (Abstract from *Nature*, Vol. 142, No. 3600, 29/10/38, pp. 798-9), *J.*, XLII., p. 1126.

Cylinder Wear (Abstract from *Autom. Eng.*, Vol. 28, No. 371), *J.*, XLII., p. 628.

Cylinder Wear (Abstract from *Autom. Eng.*, 17/8/38), *J.*, XLII., p. 887.

Diaphragm Motor Valves (Abstract from *Power*, May, 1938), *J.*, XLII., p. 746.

Dust Separation with the Cyclone Fan (Vortex Sink) (Abstract from *Forschung*, Vol. 9, No. 2), *J.*, XLII., p. 557.

A Dynamic Damper for Torsional Resonance (Abstract from *Schwizerische Banzietung*, Vol. 3, 11/6/38, p. 303; *Eng. Absts.*, Vol. 1, No. 9, Section 2, September, 1938, pp. 129-30), *J.*, XLII., p. 1131.

Effect of Gas Inertia on Volumetric Efficiency (Abstract from *Forschung*, Vol. 8, No. 6), *J.*, XLII., p. 238.

Engines for Light Aeroplanes (Abstract from *J.S.A.E.*, Vol. 43, No. 4, October, 1938, p. 20), *J.*, XLII., p. 1124.

Engine Installation and Related Problems in Large Aircraft (Abstract from *J.S.A.E.*, Vol. 42, No. 5), *J.*, XLII., p. 629.

Engines and Propellers for Powered Gliders and Light Aeroplanes (Abstract from *Flugsport*, Vol. 29, No. 24), *J.*, XLII., p. 561.

Experiments on the Hesselman Engine (Abstract from *Autom. Tech. Zeit.*, Vol. 41, 25/1/38), *J.*, XLII., p. 560.

Fabric Gears (Abstract from *Met. Vick. Elec. Co. Tech. News Bulletin*, No. 608, 29/4/38), *J.*, XLII., p. 560.

Family of "M.G." Aero Engines (Abstract from *Aeron. Eng. (U.S.S.R.)*, No. 8, August, 1937), *J.*, XLII., p. 180.

Friction of Reciprocating Engines (Abstract from *Trans. A.S.M.E.*, Vol. 60, No. 3), *J.*, XLII., p. 561.

Journal-Bearing Design as Related to Maximum Loads, Speeds and Operating Temperatures (Abstract from *Bur. Stan. J. Res.*, Vol. 19, No. 4), *J.*, XLII., p. 95.

Liquefied Air Used to Run a Boat Engine (Abstract from *J. Frank. Inst.*, Vol. 225, No. 2), *J.*, XLII., p. 355.

Motion Pictures of Engine Flames Correlated with Pressure Cards (Abstract from *J.S.A.E.*, Vol. 42, No. 5), *J.*, XLII., p. 628.

New Type Turbo-Compressors with Intermediate Cooling (Abstract from *Esch. Wyss. N.*, Jan.-March, 1938), *J.*, XLII., p. 743.

Oetiker Engine Brake (Abstract from *Autom. Tech. Zeit.*, Vol. 41, 25/1/38), *J.*, XLII., p. 559.

Proposed New Aero Engine with Double Propeller Drive and Fitted with a Cannon (Abstract from *Les Ailes*, No. 872, 3/3/38), *J.*, XLII., p. 356.

Spark Plug Endurance Tests, with Special Reference to the New Scintilla Aircraft Plugs (Abstract from *Autom. Ind.*, Vol. 78, No. 3), *J.*, XLII., p. 237.

Surface Finish Related to Wear in Internal Combustion Engines (Abstract from *J.S.A.E.*, Vol. 42, No. 8), *J.*, XLII., p. 887.

Thrust Bearings (Abstract from *Trans. A.S.M.E.*, Vol. 60, No. 3), *J.*, XLII., p. 561.

Turbulence in Internal Combustion Engines (Abstract from *Engineer*, No. 4277, 31/12/37), *J.*, XLII., p. 181.

ENGINES—CARBURETTORS

Carburettor Icing (Abstract from *J.S.A.E.*, Vol. 43, No. 4, October, 1938, p. 20), *J.*, XLII., p. 1127.

Highlights on Carburation (Abstract from *J.S.A.E.*, Vol. 43, No. 4, October, 1938, p. 21), *J.*, XLII., p. 1127.

Wind Tunnel Tests of Carburettor Intake Rams (Abstract from *N.A.C.A. Tech. Note*, No. 631), *J.*, XLII., p. 237.

ENGINES—COOLING

Cooling of the Turbine Blades of Exhaust Driven Superchargers (Abstract from *Les Ailes*, No. 864, 6/1/38), *J.*, XLII., p. 236.

The Effect of Air Passage Length on the Optimum Fin Spacing for Maximum Cooling (Abstract from *N.A.C.A. Tech. Note*, No. 649), *J.*, XLII., p. 629.

Energy Loss, Velocity Distribution and Temperature Distribution for a Baffled Cylinder Head (Abstract from *N.A.C.A. Tech. Note*, No. 620), *J.*, XLII., p. 94.

Fundamental Principles of the N.A.C.A. Cowling (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 5), *J.*, XLII., p. 473.

Measurement of Air Flow over Cylinders having very Small Distances between the Cooling Fins (Abstract from *Year Book of German Aeronautical Research*, Vol. 2, 1937), *J.*, XLII., p. 627.

Pressure Drop Across Finned Cylinders Enclosed in a Jacket (Abstract from *N.A.C.A. Tech. Note*, No. 621), *J.*, XLII., p. 95.

Principles Involved in the Cooling of a Finned and Baffled Cylinder (Abstract from *N.A.C.A. Tech. Note*, No. 655), *J.*, XLII., p. 849.

Technique of Anti-Freeze Testing (Abstract from *Ind. and Eng. Chem. (Analytical Edn.)*, Vol. 10, No. 6), *J.*, XLII., p. 743.

Wind Tunnel Tests of Air Intake Louvres (Abstract from *J. Aer. Sci.*, Vol. 5, No. 1), *J.*, XLII., p. 179.

ENGINES—CRANKSHAFTS

Crankshaft Damping (Abstract from *Autom. Eng.*, October, 1938, pp. 360-2; *Met. Vickers Tech. News Bulletin*, No. 631, 21/10/38, p. 1), *J.*, XLII., p. 1132.

Most Suitable Shape of Chamfered Corner for Crankshafts Subjected to Torsion (Abstract from *Year Book of German Aeronautical Research*, Vol. 2, 1937), *J.*, XLII., p. 632.

ENGINE—FAILURE OF ONE, *see* Aeroplanes—Performance.

ENGINES—HEAVY OIL, *see* also Fuels.

Aircraft Diesel Engines (Abstract from *Les Ailes*, No. 872, 3/3/38), *J.*, XLII., p. 356.

Auto Ignition and Combustion of Diesel Fuel in a Constant Volume Bomb (Abstract from *N.A.C.A. Report No.* 617), *J.*, XLII., p. 563.

Combustion Process in the Lanova Diesel Engine (Abstract from *Forschung*, Vol. 9, No. 1), *J.*, XLII., p. 355.

Diesel Deposits as Influenced by Fuels and Operating Conditions (Abstract from *J.S.A.E.*, Vol. 42, No. 7), *J.*, XLII., p. 851.

Diesel Supercharging—The Effect on Design and Performance (Abstract from *J.S.A.E.*, Vol. 42, No. 5), *J.*, XLII., p. 629.

Experiments with a Two-Stroke Diesel Engine (Abstract from *Forschung*, Vol. 8, No. 6), *J.*, XLII., p. 238.

Hydraulic Phenomena in Fuel Injection Systems for Diesel Engines (Abstract from *Trans. A.S.M.E.*, Vol. 59, No. 8), *J.*, XLII., p. 95.

Ignition and Combustion Process of Diesel Engines Working on the Vortex Chamber and Air Capacity Principle (Abstract from *Forschung*, Vol. 8, No. 6), *J.*, XLII., p. 238.

More About Supercharging Diesel Engines (Abstract from *Autom. Ind.*, Vol. 78, No. 3), *J.*, XLII., p. 237.

Oil Sprays. An Investigation of Velocities and Penetrations (Abstract from *Autom. Eng.*, Vol. 28, February, 1938), *J.*, XLII., p. 562.

Pescara Free Piston Compressor (Abstract from *La Science et la Vie*, No. 246, Dec., 1937), *J.*, XLII., p. 96.

The Problem of Flywheel Effect and Speed Regulation for Diesel Engine Driven Machinery (Abstract from *Trans. A.S.M.E.*, Vol. 60, No. 2), *J.*, XLII., p. 355.

Starting Troubles in Vehicle Diesel Motors (Abstract from *Eng. Absts.*, Vol. 1, No. 3), *J.*, XLII., p. 560.

Supercharging Effect on Diesel Engines (Abstract from *Autom. Ind.*, Vol. 78, No. 3), *J.*, XLII., p. 237.

ENGINES—LUBRICATION

Ageing of Lubricating Oils (Abstract from *Chem. Absts.*, Vol. 31, No. 22), *J.*, XLII., p. 182.

Ageing of Lubricating Oils—Review of Recent Work (Abstract from *Z.V.D.I.*, Vol. 82, No. 8), *J.*, XLII., p. 359.

Application of the Grignard Reagent to a Study of Mineral Oils (Abstract from *Ind. and Eng. Chem. (Analytical Edn.)*, Vol. 19, No. 4), *J.*, XLII., p. 564.

Changes in Aero Engine Oils in Use and Methods of Testing Them (Abstract from *J. Soc. Chem. Ind.*, (Abstracts B), Vol. 57, No. 2), *J.*, XLII., p. 359.

Characteristics of Insulating Oils Under Constant Temperature and Humidity (Abstract from *Electrotechnical Journal*, September, 1938; *Metropolitan Vickers Tech. News Bulletin*, No. 631, 21/10/38, p. 4), *J.*, XLII., p. 1128.

Chemical Structure and Viscosity Characteristics of Lubricating Oils (Abstract from *Aer. Res. Inst., Tokio*, Report No. 162), *J.*, XLII., p. 852.

Development of Acidity in Certain Lubricating Oils on Use or Oxidation (Abstract from *Ind. and Eng. Chem. (Analytical Edn.)*, Vol. 9, No. 12), *J.*, XLII., p. 182.

Effect of Oil Characteristics on Wear in Aviation Engines (Abstract from *J.S.A.E.*, Vol. 43, No. 4, October, 1938, p. 19), *J.*, XLII., p. 1126.

Increase in Viscosity of a Mineral Oil at Rest (Abstract from *Comp. Rend.*, Vol. 207, No. 15, 10/10/38, pp. 616-618), *J.*, XLII., p. 1128.

Influence of Lubricating Agents on the Starting Behaviour of Motors (Abstract from *Chem. Absts.*, Vol. 31, No. 22), *J.*, XLII., p. 182.

Influence of Pressure on Film Viscosity in Heavily Loaded Bearings (Abstract from *Trans. A.S.M.E.*, Vol. 60, No. 4), *J.*, XLII., p. 631.

Laboratory Method for Determining the Behaviour of Lubricating Oils on Vaporisation (Abstract from *Angew. Chem.*, 51, 1938), *J.*, XLII., p. 630.

Laboratory Test Method for the Tendency of Lubricating Oils to Produce Ring Sticking (Abstract from *Luftwissen*, Vol. 5, No. 6), *J.*, XLII., p. 744.

Lubrication of Anti-Friction Bearings (Abstract from *Chem. Absts.*, Vol. 31, No. 22), *J.*, XLII., p. 182.

Making Castor Oil Soluble in Mineral Oil (Abstract from *Ind. and Eng. Chem. (News Edn.)*, Vol. 15, No. 22, 20/11/37), *J.*, XLII., p. 98.

Measured Feed Lubrication (Abstract from *Oil Engine*, September, 1938, pp. 158-9; *Metropolitan Vickers Tech. News Bulletin*, No. 627, 23/9/38, p. 8), *J.*, XLII., p. 1042.

Permissible Load in High Speed Lubricated Bearings (Abstract from *Forschung*, Vol. 9, No. 3), *J.*, XLII., p. 745.

Piston Lubrication (Abstract from *Autom. Eng.*, Vol. 28, No. 369), *J.*, XLII., p. 474.

Properties and Testing of Lubricants—Review of Papers Presented to the Inst. Mech. Eng., October, 1937 (Abstract from *Engineering*, No. 3748, 12/11/37), *J.*, XLII., p. 97.

Structure of Lubricating Greases (Abstract from *J. Inst. Petrol Tech.*, Vol. 24, No. 174), *J.*, XLII., p. 563.

Symposium on Lubricants (Abstract from *Amer. Soc. for Testing Materials, Philadelphia*), *J.*, XLII., p. 745

Testing of Hypoid Lubricants (Abstract from *J.S.A.E.*, August, 1938), *J.*, XLII., p. 887.

The Viscosity Temperature Index of Lubricating Oils (Abstract from *Chem. Absts.*, Vol. 31, No. 22), *J.*, XLII., p. 182.

ENGINES—MODEL EXPERIMENTS, *see* Engines—Performance.

ENGINES—PERFORMANCE

Acoustic Vibrations and Internal Combustion Engine Performance, Part 1, Standing Wave in the Intake Pipe System (Abstract from *J. Appl. Physics*, Vol. 9, 1938), *J.*, XLII., p. 887.

The Behaviour of Compression Ignition Engines in a Rarefied Atmosphere (Abstract from *Comp. Rend.*, Vol. 206, No. 6), *J.*, XLII., p. 354.

Drop in Thermodynamic Efficiency Due to High Piston Speeds (Abstract from *Forschung*, Vol. 9, No. 5, Sept.-Oct., 1938, pp. 242-251), *J.*, XLII., p. 1041.

Effect of Spark-Timing Regularity on the Knock Limitations of Engine Performance (Abstract from *N.A.C.A. Tech. Note*, No. 651), *J.*, XLII., p. 631.

Endurance and Fuel Consumption (Abstract from *Aircr. Eng.*, Vol. 9, No. 106), *J.*, XLII., p. 96.

Formulæ for the Performance of Spark Ignition Engines at Altitude (Abstract from *Z.V.D.I.*, Vol. 82, No. 27), *J.*, XLII., p. 849.

Measurement of Engine Power in Flight (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 9), *J.*, XLII., p. 853.

Torsional Vibrations in In-Line Aircraft Engines (Abstract from *J.S.A.E.*, August, 1938), *J.*, XLII., p. 889.

Two-Dimensional Model Experiments on the Non-Steady Scavenging Process in Two-Stroke Engines (Abstract from *Forschung*, Vol. 9, No. 5, Sept.-Oct., 1938, pp. 235-241), *J.*, XLII., p. 1041.

ENGINES—PISTONS

Investigation on Wear of Piston Rings (Abstract from *Year Book of German Aeronautical Research*, Vol. 2, 1937), *J.*, XLII., p. 742.

New Surfaces for Pistons (Abstract from *Year Book of German Aeronautical Research*, Vol. 2, 1937), *J.*, XLII., p. 627.

Piston Rings—The Theory Underlying the High Point Design (Abstract from *Autom. Eng.*, Vol. 28, No. 367), *J.*, XLII., p. 236.

Problem of Ring Sticking in Aviation Engines (Abstract from *J.S.A.E.*, Vol. 41, No. 6), *J.*, XLII., p. 742.

ENGINES—PUMPS

Complete Characteristics of Centrifugal Pumps and Their Use in the Prediction of Transient Behaviour (Abstract from *Trans. A.S.M.E.*, Vol. 59, No. 8), *J.*, XLII., p. 103.

Determination of the Rate of Discharge of Jerk Pump Fuel Injection Systems (Abstract from *Trans. A.S.M.E.*, Vol. 60, No. 2), *J.*, XLII., p. 356.

ENGINES—SUPERCHARGING

Friction in Aircraft Supercharger Impellers (Abstract from *Aeron. Eng.* (*U.S.S.R.*), No. 6, June, 1937), *J.*, XLII., p. 236.

Design of Supercharger Diffusers Taking into Account Friction Coefficients (Abstract from *Aeron. Eng.* (*U.S.S.R.*), No. 9, September, 1937), *J.*, XLII., p. 189.

Design of Aero Engine Superchargers (Abstract from *L.F.F.*, Vol. 14, No. 4-5), *J.*, XLII., p. 94.

Experiments on the Internal Cooling of Exhaust Turbine Blades, Operating at High Exhaust Temperatures (Abstract from *L.F.F.*, Vol. 15, Nos. 10-11, 10/10/38, pp. 495-499), *J.*, XLII., p. 1125.

Influence of Number of Blades on the Performance of a Centrifugal Supercharger (Abstract from *Aer. Res. Inst., Tokio*, Report No. 159, December, 1937), *J.*, XLII., p. 355.

Problems in the Construction of Exhaust Gas Turbines (Abstract from *L.F.F.*, Vol. 15, Nos. 10-11, 10/10/38, pp. 481-494), *J.*, XLII., p. 1124.

Supercharging Diesel Engines (Abstract from *J.S.A.E.*, Vol. 43, No. 4, October, 1938, p. 21), *J.*, XLII., p. 1124.

EXHAUST TURBINES, *see* Engines—Supercharging.

FIRE PREVENTION

Combustible Substances Considered as Promoters of Incombustible Extinguishers for the Practical Extinction of Flames (Abstract from *Comp. Rend.*, Vol. 205, 1937, pp. 562-5), *J.*, XLII., p. 359.

Fire Protection in Harbour Works (Abstract from *W.R.H.*, Vol. 18, No. 18), *J.*, XLII., p. 234.

FLOATING ISLANDS, *see* Catapults.

FLUID MOTION, *see* also Aerodynamics; Gases; Hydrodynamics.

On the Disturbed Motion of a Gas with a Boundary Layer (Abstract from *Z.A.M.M.*, Vol. 18, No. 4), *J.*, XLII., p. 886.

Flow Resistance of Compressible Gases in Smooth Round Tubes of Constant Radius (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 8, 1937), *J.*, XLII., p. 88.

On the Indeterminacy of the Momentum of an Infinite Fluid (Abstract from *Z.A.M.M.*, Vol. 18, No. 3), *J.*, XLII., p. 739.

Instability of Fluids Heated from Below (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 164, No. 917), *J.*, XLII., p. 350.

Measurement of Wake (Abstract from *Trans. of N.E.C. Inst. of E. and S.*, 31/3/38), *J.*, XLII., p. 621.

Model Experiments on the Flow of the Gases in Pulverised Fuel Boilers (Abstract from *Forschung*, Vol. 9, No. 1), *J.*, XLII., p. 351.

On the Motion of a Fluid Heated from Below (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 165, No. 921), *J.*, XLII., p. 556.

Photographic Study of Flow Phenomena Around Obstacles (Abstract from *Pub. Sci. et Tech.*, No. 114, 1937), *J.*, XLII., p. 349.

Production and Dissipation of Vorticity in a Turbulent Fluid (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 164, No. 916), *J.*, XLII., p. 175.

The Problem of Calculating Labyrinth Packing (Abstract from *Centr. Aero-Hydrodyn. Inst., Moscow, Tech. Note*, No. 142), *J.*, XLII., p. 1121.

Concerning Secondary Flow in Straight Pipes (Abstract from *Proc. Camb. Phil. Soc.*, July, 1938), *J.*, XLII., p. 880.

Some Results from Research on Flow Nozzles (Abstract from *Trans. A.S.M.E.*, Vol. 60, No. 3), *J.*, XLII., p. 565.

On the Stability of a Viscous Liquid between Rotating Co-axial Cylinders (Abstract from *Proc. Roy. Soc.*, No. 929, 5/8/38), *J.*, XLII., p. 879.

Theoretical and Experimental Contribution to the Problem of Turbulent Velocity Distribution (Abstract from *Phys. Zeit.*, Vol. 39, No. 11), *J.*, XLII., p. 739.

Is Turbulent Motion Possible in an Incompressible Fluid without Forming Surfaces of Discontinuity? (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 3, 1937), *J.*, XLII., p. 88.

Two-Dimensional Subsonic Compressible Flow Past Elliptic Cylinders (Abstract from *N.A.C.A. Report No.* 624), *J.*, XLII., p. 739.

Viscosity Measurements (Abstract from *Ind. and Eng. Chem (Analytical Edn.)*, Vol. 10, No. 6), *J.*, XLII., p. 745.

FLUTTER, *see* Aeroplanes—Stability; Aeroplanes—Wings.

FLYING BOATS

Air Drag of Hulls (Abstract from *Aircr. Eng.*, Vol. 9, No. 106), *J.*, XLII., p. 89.

Discussion of Certain Problems Connected with the Design of Hulls of Flying Boats and the Use of General Test Data (Abstract from *N.A.C.A. Report No.* 625), *J.*, XLII., p. 741.

Hydrodynamic and Aerodynamic Tests of Models of Flying Boat Hull, designed for Low Aerodynamic Drag—N.A.C.A. Models 74, 74a and 75 (Abstract from *N.A.C.A. Tech. Note*, No. 668, October, 1938), *J.*, XLII., p. 1123.

Measurements with the Six-Component Balance on a Model of a Flying Boat Supported on a Glass Plate in Order to Represent the Effect of the Water Surface (Abstract from *L.F.F.*, Vol. 14, No. 12), *J.*, XLII., p. 174.

Operating Characteristics of Large Flying Boats (Abstract from *J.S.A.E.*, August, 1938), *J.*, XLII., p. 883.

Study of Flying Boat Take-off (Abstract from *N.A.C.A. Tech. Note*, No. 643), *J.*, XLII., p. 559.

Tank Tests of a Model of One Hull of the Savoia S-55-X Flying Boat—N.A.C.A. Model 46 (Abstract from *N.A.C.A. Tech. Note*, No. 635), *J.*, XLII., p. 353.

Tank Tests of Model 36 Flying Boat Hull (Abstract from *N.A.C.A. Tech. Note*, No. 638), *J.*, XLII., p. 468.

FOCKE, H.

The Focke Helicopter, *J.*, XLII., p. 577.

FRASER, SQUADRON-LEADER H. P., A.F.C., B.A., A.F.R.Ae.S., R.A.F.

High Wing Loading and Some of Its Problems from the Pilot's Point of View, *J.*, XLII., p. 405.

FUELS, *see* also Engines; Hydrocarbons.

Acetal as Motor Fuel (Abstract from *Chimica e industria*, No. 19, 1937), *J.*, XLII., p. 181.

Aircraft Fuels of High Octane Rate (Abstract from *Oil and Jes. Journal*, Vol. 36, No. 46), *J.*, XLII., p. 852.

Alternative Fuels—The Case for Vegetable Oils (Abstract from *Autom. Eng.*, Vol. 28, No. 374), *J.*, XLII., p. 888.

Carbon Deposits as Affected by Fuel and Oil (Abstract from *Autom. Eng.*, Vol. 28, No. 367), *J.*, XLII., p. 239.

Catalysts in Hydrocarbon Chemistry (Abstract from *J. Inst. Petrol. Tech.*, Vol. 24, No. 174), *J.*, XLII., p. 563.

C.F.R. Motor Survey (Abstract from *J.S.A.E.*, Vol. 43, No. 4, October, 1938, p. 19), *J.*, XLII., p. 1127.

Critical Solution Temperatures of Petrol, n-Propyl Alcohol and Water (Abstract from *Bur. Stan. J. Res.*, Vol. 20, No. 1), *J.*, XLII., p. 358.

Determination of the Ignitability of Diesel Oils on a Laboratory Scale (Abstract from *J. Inst. Petrol. Tech.*, Vol. 23, No. 168), *J.*, XLII., p. 98.

Detonation and Auto-Ignition. Some Considerations on Methods of Determination (Abstract from *Journees Techniques Internationales de l'Aeronautique*, 23-27, Nov. 1936), *J.*, XLII., p. 361.

Effect of Altitude on Anti-Knock Requirements of Cars (Abstract from *Chem. Absts.*, Vol. 32, No. 3), *J.*, XLII., p. 360.

Effect of Carburation and Manifolding on Fuel Knock Characteristics (Abstract from *J. Inst. Petrol. Tech.*, Vol. 24, No. 174), *J.*, XLII., p. 563.

Effect of Fuel Air Ratio on Detonation in Petrol Engines (Abstract from *World Petroleum Congress Report, Paris*, June, 1937), *J.*, XLII., p. 563.

Effect of Test Conditions on Fuel Rating (Abstract from *J.S.A.E.*, Vol. 42, No. 2), *J.*, XLII., p. 358.

Engine Performance and Knock Rating of Fuels for High Output Engines (Abstract from *N.A.C.A. Tech. Note*, No. 647), *J.*, XLII., p. 630.

Fuel Consumption of a Carburettor Engine at Various Speeds and Torques (Abstract from *N.A.C.A. Tech. Note*, No. 654), *J.*, XLII., p. 744.

Hot Spot Ignition in Internal Combustion Engines (Abstract from *Pub. Sci. et Tech.*, No. 115, 1937), *J.*, XLII., p. 356.

The Ignition Lag in Diesel Engines (Abstract from *Forschungsheft*, No. 392, Sept.-Oct., 1938, pp. 15-24), *J.*, XLII., p. 1043.

Ignition Quality of Diesel Fuels (Abstract from *J. Inst. Petrol. Tech.*, Vol. 24, No. 173), *J.*, XLII., p. 564.

Improvement in Knock Rating by the Injection of Anti-Detonating Liquids into the Induction Pipe of Spark Ignition (Carburettor) Engines (Abstract from *Les Ailes*, No. 870, 17/2/38), *J.*, XLII., p 357.

Investigation of the Atomisation of Liquid Fuel (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 11-12), *J.*, XLII., p. 562.

Limit of Detonation of Mixtures of Hydrocarbons with Air (Abstract from *Fuel*, Vol. 17, No. 7), *J.*, XLII., p. 851.

Lowering the Ignition Temperature of Gas Oils (Abstract from *Autom. Ind.*, Vol. 78, No. 6), *J.*, XLII., p. 358.

Media for Overcoming Drop in Power Associated with the Use of Gaseous Fuels in I.C. Engines (Abstract from *Z.V.D.I.*, Vol. 81, No. 47), *J.*, XLII., p. 474.

Mixture Formation and Combustion in High Speed Diesel Engines (Abstract from *Z.V.D.I.*, Vol. 82, No. 1), *J.*, XLII., p. 472.

Photographic Study of Combustion and Knock in a Spark Ignition Engine (Abstract from *N.A.C.A. Report No.* 622), *J.*, XLII., p. 630.

Power and Economy of Mixture Scavenged Two-Stroke Engines (Abstract from *Autom. Tech. Zeit.*, Vol. 40, No. 24), *J.*, XLII., p. 472.

Problem of Detonation (Abstract from *Airc. Eng.*, Vol. 10, No. 111), *J.*, XLII., p. 564.

Report on Liquid Methane (Abstract from Report available in *R.T.P.*), *J.*, XLII., p. 744.

Spray Range of Liquid Fuel in an Opposing Air Flow (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 6, 1937), *J.*, XLII., p. 97.

Study of Di-isopropyl Ether as a Motor Fuel (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 8, 1937), *J.*, XLII., p. 97.

Synthetic Motor Spirits (Abstract from *Fuel*, Vol. 17, No. 1), *J.*, XLII., p. 240.

Theoretical and Experimental Investigation on the Combustion Processes of Spark Ignition and Diesel Engines (Abstract from *L.F.F.*, Vol. 14, No. 12), *J.*, XLII., p. 471.

Theoretical Investigations and Experiments on Ignition Lag and Knock (Abstract from *Forschungsheft*, No. 392, Sept.-Oct., 1938, pp. 1-14), *J.*, XLII., p. 1043.

Two-Stage Auto-Ignition of Hydrocarbons and "Knock" (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 167, No. 928), *J.*, XLII., p. 850.

U.S. Navy Correlation of Laboratory Tests on Diesel Fuels with Service Engine Operation (Abstract from *Trans. A.S.M.E.*, Vol. 60, No. 2), *J.*, XLII., p. 360.

Water Tolerances of Mixtures in Petrol with Ethyl Alcohol (Abstract from *Bur. Stan. J. Res.*, Vol. 20, No. 1), *J.*, XLII., p. 358.

GASES, *see* also Aerodynamics; Fluid Motion.

Catalytic Combustion of Gases on Metals (Abstract from *Engineering*, 25/5/38), *J.*, XLII., p. 850.

Combustion Levels in Flame Gases (Abstract from *Engineering*, No. 3748, 12/11/37), *J.*, XLII., p. 96.

Comparison of Ideal and Actual Combustion Temperatures and Pressures (Abstract from *Chemical Reviews*, Vol. 21, Dec., 1937, pp. 413-420; *Fuel*, Vol. 17, No. 9, Sept., 1938, pp. 284-5), *J.*, XLII., p. 1041.

Dependence of the Coefficient Thermal Conductivity of Gases and Vapours on the Pressure (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 5), *J.*, XLII., p. 103.

Determination of Oxygen Content of Exhaust Gases by the Thermal Conductivity Method (Abstract from *Archiv für Warmewirtschaft*, Vol. 19, No. 2), *J.*, XLII., p. 361.

Formation of Nitrogen Oxide in Combustion of City Gas in Burners and Heating Chambers (Abstract from *Chem. Absts.*, Vol. 31, No. 22), *J.*, XLII., p. 181.

A Study of Chain Reaction in the Thermal Decomposition of Diethyl Ether (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 167, No. 931, 23/9/38, pp. 456-63), *J.*, XLII., p. 1042.

Technical Gas Analysis by Measurement of Thermal Conductivity (Abstract from *J. Soc. Chem. Ind.* (Abstracts B), Vol. 57, No. 2), *J.*, XLII., p. 359.

Helium versus Hydrogen in Airships (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 5), *J.*, XLII., p. 470.

Inter-Relation of Exhaust Gas Constituents (Abstract from *N.A.C.A. Report No.* 616, 1937), *J.*, XLII., p. 357.

Measurement of the Total Radiation of Steam and CO_2 in Mixtures with Non-Radiating Gases at Temperatures Up to 1,300°C. (Abstract from *Forschungsheft*, No. 387, Nov.-Dec., 1937), *J.*, XLII., p. 244.

New War Gases for Old? (Abstract from *Army Ordnance*, Vol. 18, No. 108), *J.*, XLII., p. 556.

Reaction Chains in the Thermal Decomposition of Hydrocarbons—A Comparison of Ethane, Methane, Propane and Hexane (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 167, No. 931, 23/9/38, pp. 447-55), *J.*, XLII., p. 1042.

Smoke Producing Apparatus (Abstract from *J. Soc. Chem. Ind.* (Abstracts B), Vol. 57, Jan., 1938), *J.*, XLII., p. 234.

On the Theory of Bunsen Flames (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 2, 1937), *J.*, XLII., p. 97.

GLASS, *see* Materials—Glass.

GLIDERS AND GLIDING

Development of Sailplanes, by Sqdn.-Ldr. G. M. Buxton, R.A.F., *J.*, XLII., p. 653.

Some Sailplane Design Data and Information from German Sources, by B. S. Shenstone, A.F.R.Ae.S., *J.*, XLII., p. 701.

GOUGH, Dr. H. J., M.B.E., D.Sc., M.I.Mech.E,. F.R.S.

Wilbur Wright Memorial Lecture—Materials of Aircraft Construction, *J.*, XLII., p. 921.

GROUND EFFECT, *see* Aerodynamics, Aeroplanes—Performance.

GUIDI, G.

A Study of the Wing-Beats of Pigeons in Flight, *J.*, XLII., p. 1104.

HAFNER, RAOUL

The Hafner Gyroplane, *J.*, XLII., p. 109.

HEAT TRANSMISSION

Heat Conductivity of a Packing of Small Balls in a Quiescent Gas (Abstract from *Forschung*, Vol. 9, No. 1), *J.*, XLII., p. 363.

Heat Conductivity of a Spherical Packing in a Gas Current (Abstract from *Forschung*, Vol. 9, No. 2), *J.*, XLII., p. 571.

Heat Dissipation Through an Annular Disk or Fin of Uniform Thickness (Abstract from *J. App. Mech.*, Vol. 5, No. 2), *J.*, XLII., p. 752.

Heat Transfer Processes in Air-Cooled Engine Cylinders (Abstract from *N.A.C.A. Report No.* 612), *J.*, XLII., p. 473.

Measurement of Transparency of Electric Insulators to Thermal Radiations (Abstract from *Forschung*, Vol. 9, No. 5, Sept.-Oct., 1938, p. 251), *J.*, XLII., p. 1050.

Method of Measuring the Thermal Conductivity of Fluids (Abstract from *Z.V.D.I.*, Vol. 82, 15/1/38), *J.*, XLII., p. 570.

Resistance and Heat Transfer on Bundles of Tubes (Abstract from *Die Warme*, 8/10/38, pp. 738-43; *Metropolitan Vickers Tech. News Bulletin*, No. 631, 21/10/38, p. 10), *J.*, XLII., p. 1134.

HELICOPTERS, *see* also Rotorcraft.

The Focke Helicopter, by H. Focke, *J.*, XLII., p. 577.

HELIUM, *see* Gases.

HOFF, N. J.

Instability of Monocoque Structures in Pure Bending, *J.*, XLII., p. 291.

HYDROCARBONS, *see* also Fuels.

Mechanism of the Autoxidation of Simple Hydrocarbons. Autoxidation of Motor Fuels and Lubricating Oils (Abstract from *Chem. Absts.*, Vol. 31, No. 22), *J.*, XLII., p. 181.

Viscosity of Hydrocarbons (Abstract from *J. Inst. Petrol. Tech.*, Vol. 24, No. 171), *J.*, XLII., p. 475.

HYDRODYNAMICS

Effect of Change in Cross-Section on the Velocity and Pressure Distribution of Turbulent Flow in Pipes (Abstract from *Forschungsheft* 389, Mar.-Apl., 1938), *J.*, XLII., p. 557.

Effect of the Type of Surface Roughness on the Resistance of a Ship's Hull (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 9), *J.*, XLII., p. 174.

Experimental Study of Turbulence Diffusion (Abstract from *Proc. Phys. Soc.*, Vol. 49, 1937), *J.*, XLII., p. 173.

Experiments on Water Waves of Translation in Small Channels (Abstract from *Phil. Mag.*, Vol. 25, No. 170), *J.*, XLII., p. 622.

Influence of Wall Oscillations, Wall Rotation and Entry Eddies, on the Breakdown of Laminar Flow in an Annular Pipe (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 165, No. 923), *J.*, XLII., p. 558.

Notes on the Laminar Sub-Layer in Smooth Pipes (Abstract from *J. Aer. Sci.*, Vol. 5, No. 4), *J.*, XLII., p. 463.

Pressure Losses for Fluid Flow in 90° Pipe Bends (Abstract from *Bur. Stan. J. Res.*, Vol. 21, No. 1), *J.*, XLII., p. 844.

Ship Stresses in Rough Water in the Light of Investigations made upon the Motor Ship "San Francisco" (Abstract from *The N.E.C. Inst. of E. and S. Transactions*, Vol. 54), *J.*, XLII., p. 843.

Stability Problem in Hydrodynamics—II (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 6), *J.*, XLII., p. 623.

On the Streaming of Water from Underneath a Sharp-Edged Sluice (Abstract from *Z.A.M.M.*, Vol. 17, No. 5), *J.*, XLII., p. 87.

Theory of Active Anti-Rolling Tanks (Abstract from *Z.A.M.M.*, Vol. 18, No. 2), *J.*, XLII., p. 622.

Turbulent Flow of a Fluid in a Straight Pipe of Annular Cross-Section (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 11-12), *J.*, XLII., p. 557.

The Use of Vertical Pipes as an Overflow for a Large Tank (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 168, No. 933), *J.*, XLII., p. 1121.

HYDROGEN, *see* Gases.

IGNITION, *see* Engines; Fuels; Hydrocarbons.

The Iodine Accumulator (Abstract from *Electrical Review*, 30/9/38, pp. 447-8; *Metropolitan Vickers Tech. News Bulletin*, No. 629, 7/10/38, p. 5), *J.*, XLII., p. 1135.

Pressure Waves Accompanying Detonation in the Internal Combustion Engine (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 6), *J.*, XLII., p. 630.

INSTRUMENTS

A.A. Trial Shot Slide Rule (Abstract from *Coast Artillery Journal*, No. 3, May-June, 1938), *J.*, XLII., p. 736.

The Absolute Wireless Altimeters (Abstract from *Aero Digest*, Vol. 32, No. 11, November, 1938, pp. 87-105), *J.*, XLII., p. 1130.

Airport Orientator (Gyro Orientated Chart) (Abstract from *Inter. Avia.*, No. 503-4, 3/1/38), *J.*, XLII., p. 184.

Bristol Metameter (Abstract from *Electrical Engineer*, 8/4/38), *J.*, XLII., p. 565.

Constantin Wind Vane Stabiliser on Aircraft (Abstract from *Tech. Aeron.*, Vol. 29, No. 147), *J.*, XLII., p. 566.

Design of Flexure Pivots (Abstract from *J. Aer. Sci.*, Vol. 5, No. 1), *J.*, XLII., p. 183.

Direct Reading Air Velocity Meter (Abstract from *Metropolitan Gazette*, June, 1938), *J.*, XLII., p. 748.

A Direct Reading Radio Wave (Reflection Type) Absolute Altimeter for Aircraft (Abstract from *Proc. Inst. Rad. Eng.*, Vol. 26, No. 7), *J.*, XLII., p. 859.

Distance Recorder for Firedamp (Abstract from *S. African Mining and Eng. J.*, 26/3/38), *J.*, XLII., p. 747.

Dynamic Errors in the Rate of Climb Meter (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 11, Sept., 1938, pp. 426-30), *J.*, XLII., p. 1047.

Effect of Yaw on Vane Anemometers (Abstract from *Bur. Stan. J. Res.*, Vol. 19, No. 6), *J.*, XLII., p. 240.

Electrical Thermometers for Aircraft (Abstract from *N.A.C.A. Report No.* 606), *J.*, XLII., p. 98.

Flight Testing with an Engine Torque Indicator (Abstract from *J.S.A.E.*, Vol. 42, No. 2), *J.*, XLII., p. 361.

German Land Plane Speed Record—Details of Measuring Instruments (Abstract from *Luftwelt*, Vol. 5, No. 3), *J.*, XLII., p. 476.

Goodrich Flexometer for Testing Rubber (Abstract from *Ind. and Eng. Chem. (Analytical Edn.)*, Vol. 9, No. 12), *J.*, XLII., p. 183.

Gyroscopic Instruments for Instrument Flying (Abstract from *N.A.C.A. Tech. Note*, No. 662, Sept., 1938), *J.*, XLII., p. 1047.

Height Computer for Use in Aerological Work (Abstract from *M.O. Prof. Notes*, No. 80), *J.*, XLII., p. 746.

Instruments for Testing the Performance of Aircraft in Flight (Abstract from *Luftwissen*, Vol. 4, No. 12), *J.*, XLII., p. 184.

Magneto Elastic Recording of Torsional Vibrations (Abstract from *Forschung*, Vol. 9, No. 3), *J.*, XLII., p. 747.

Measurement of Mechanical Power (Abstract from *Inst. Eng. Journal*, August, 1938), *J.*, XLII., p. 887.

Measurements of Oil Pressure in Bearings (Abstract from *Forschung*, Vol. 9, No. 5 Sept.-Oct., 1938, pp. 256-7), *J.*, XLII., p. 1042.

Measurements with a Half Pitot-Tube (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 166, No. 927), *J.*, XLII., p. 738.

A Mechanical Optical High Speed Indicator (Abstract from *Engineer*, No. 4310, 19/8/38), *J.*, XLII., p. 888.

Modern Aids to Vibration Study (Abstract from *J. App. Mech.*, Vol. 4, No. 4), *J.*, XLII., p. 184.

Modern Extensometers (Abstract from *Forschung*, Vol. 9, No. 5, Sept.-Oct., 1938, pp. 229-234), *J.*, XLII., p. 1046.

N.A.C.A. Optical Engine Indicator (Abstract from *N.A.C.A. Tech. Note*, No. 634), *J.*, XLII., p. 362.

N.A.C.A. Stall Warning Indicator (Abstract from *Inter. Avia.*, No. 590, 2/11/38, p. 5; see also *N.A.C.A. Tech. Note*, No. 670, 1938), *J.*, XLII., p. 1129.

Northerly Turning Error of the Magnetic Compass for Aircraft (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 9), *J.*, XLII., p. 853.

Performance Characteristics of Venturi Tubes Used in Aircraft for Operating Air-Driven Gyroscopic Instruments (Abstract from *N.A.C.A. Tech. Note*, No. 624), *J.*, XLII., p. 183.

Precision Contents Gauges for Tanks containing Liquids (Abstract from *Die Messtechnik*, Apl., 1933), *J.*, p. 99.

Principle and Test of the Mirror Type Pitot (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 8), *J.*, XLII., p. 843.

Sensitivity of the Immersed Venturi Pitot Head at Low Speeds (Abstract from *Phil. Mag.*, August, 1938), *J.*, XLII., p. 888.

The Siemens Electron Microscope (Abstract from *Engineering*, Vol. 146, No. 3797, 21/10/38, pp. 474-475), *J.*, XLII., p. 1129.

Sound Pressure Level Meter without Amplification (Abstract from *N.A.C.A. Tech. Note*, No. 629), *J.*, XLII., p. 240.

Sound Ranging of Aircraft with Optical Recording (Abstract from *Rev. de l'Armée de l'Air*, No. 102, January, 1938), *J.*, XLII., p. 462.

Status of Instrument Landing Systems (Abstract from *Proc. Inst. Rad. Eng.*, Vol. 26, No. 6), *J.*, XLII., p. 746.

Stratosphere Balloon Altitude Comparison of Barometric and Photogrammetric Measurements (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 9), *J.*, XLII., p. 853.

Stroboscopic Measurement of Slip and Speed (Abstract from *E.T.Z.*, 8/9/38, pp. 957-60; *Metropolitan Vickers Tech. News Bulletin*, No. 627, 23/9/38, p. 17), *J.*, XLII., p. 1046.

Transport of Electric Ions Applied to Supersonic Speed Measurements (Abstract from *Comp. Rend.*, Vol. 206, No. 14), *J.*, XLII., p. 558.

Type of Flow in Gas Measuring Nozzles (Abstract from *Forschung*, Vol. 9, No. 1), *J.*, XLII., p. 362.

Vibration Stress Measurements in Strong Centrifugal Fields (Abstract from *J. App. Mech.*, Vol. 4, No. 4), *J.*, XLII., p. 184.

INSULATING OILS, *see* Engines—Lubrication.

INTERFERENCE, *see* Aerodynamics—Interference.

KIDSON, C. I.

Model Experiments on the Site of Rongotai Aerodrome, Wellington, New Zealand, *J.*, XLII., p. 165.

LECTURE SPEAKERS

Adam, Flight-Lt. M. J., p. 1078.
Aldrin, E. E., p. 440.
Alston, R. P., p. 448.
Anderson, D. F., p. 450.
Bailey, C. E. G., p. 502.
Bairstow, L., p. 220.
Barnwell, F. S., pp. 76, 446, 453.
Barter, C. M., p. 455.
Barton, F. S., p. 504.
Bateman, H., p. 83.
Baynes, L. E., p. 686.
Belart, H., p. 396.
Bennett, J. A. J., p. 147.
Blucke, Squadron-Leader, p. 431.
Bradbrooke, F. D., p. 455
Bramson, M. L., pp. 225, 1081.
Brie, R. A. C., p. 145.
Brunt, D., p. 683.
Bulman, P. W. S., pp. 398, 425
de Burgh, D. H., p. 501.
Burke, Flt.-Lieut., p. 432
Burke, H. St G., p. 454.
Carter, Bonham, p. 505.
Chaplin, R. H., p. 224.
Clarkson, R. M., pp. 84, 399.
Conolly, J. V., p. 834.
Courteney, Capt., p. 398.
Courteney, Frank, p. 426
Cowey, Mr., p. 447.
Crocombe, F. F., p. 439.
Davies, H., pp. 534, 795.
Denman, R., p. 501.
Devereux, W. C., p. 794.
Digby, F. J. W., p. 529.
Dismore, F., p. 503.
Douglas, G. P., p. 221.
Fage, A., p. 832.

Farren, W. S., pp. 221, 531.
Fellowes, P. F. M., p. 11.
Fedden, A. H. R., pp. 73, 392, 1076.
Fenton, G. B., pp. 399, 532.
Fischeles, E. G., p. 1082.
Forman, J., p. 146.
Fox, L. F., p. 835.
Frazer, H. P., p. 455.
Furnival, J. M., p. 506.
Gouge, A., p. 80.
Graham, R. R., p. 447.
Gray, W. E., pp. 399, 452, 507, 531, 835
Green, F. M., p. 447.
Hadekel, R., p. 530.
Hall, A. A., p. 835.
Hall, A. H., pp. 793, 795.
Hall, S. Scott, p. 690.
Hill, G. T. R., pp. 429, 500, 509, 679, 687, 1079.
Hilton, Dr., p. 225.
Hitchcock, A., p. 505.
Kronfeld, R., pp. 146, 683.
Lachmann, G. V., pp. 82, 392, 450.
Langley, M., p. 84.
Lippisch, A., p. 691.
Lock, C. N. H., p. 81.
Love, J., p. 530.
Lucas, H. C., p. 453.
Lynam, F. C., p. 80.
Maccoll, J. W., p. 221.
Manning, W. O., pp. 427, 506, 680.
Manson, J. A. C., p. 530.
McKenna, J. F. X., p. 430.
Mills, J. B., p. 834.
Moore-Brabazon, J. T. C., pp. 143, 157.
Nazir, P. P., pp. 399, 451, 454, 531.
Norman, Nigel, pp. 147, 398, 454, 504.
Norway, N. S., p. 438.
Quill, Flt.-Lieut., p. 432.
Quill, J. K., p. 449.
Page, F. Handley, pp. 793, 1055, 1082.
de Paravicini, T. P., p. 533.
Parker, J. Lankester, p. 439.
Penny, R. E., p. 392.
Perring, G. W. A., p. 833.
Piercy, N. A. V., pp. 527, 832.
Pugsley, A. G., p. 687.
Pye, D. R., pp. 74, 225.
Radcliffe, F., pp. 85, 147, 432, 795, 1080.
Reder, O., p. 146.
Relf, E. F., pp. 223, 528, 529, 530, 531, 532, 533, 534, 832, 833.
Rowley, Wing-Cmdr., p. 480.
Sempill, Lord, pp. 679, 687.
Serby, J. E., pp. 453, 534.
Sharman, N. D., p. 510.
Shaw, R. A., p. 533.
Shenstone, B., pp. 448, 681.
Smett, Mr., p. 535.
Smith, Ferris, pp. 1080, 1081.
Squire, H. B., p. 529.
Stafford, R. S., pp. 450, 532.
Staniland, C. S., p. 431.
Stephens, A. V., p. 835.
Sutton, H., p. 795.
Swain, Sqn.-Ldr. F. R. D., p. 1078.
Sweny, L. A., p. 503.
Thomas, F. M., pp. 74, 77, 79, 80, 81, 82, 83, 84, 85.
Thomas, Mr., p. 453.
Thurston, A. P., p. 144.
Townend, H. C. H., pp. 145, 396, 452.
Uwins, Capt. C. F., p. 1076.
Verney, Air Comm. R. H., p. 1079.
Vessey, H. F., pp. 429, 453, 458.
Villiers, C. A., p. 1081.
Watts, H. C., pp. 78, 82, 146.
Weyl, A. R., p. 688.
Whittle, F., p. 224.
Wilkinson, K. J. R., p. 1081.
Williams, D. L. Hollis, pp. 396, 428, 445, 795, 1078.
Wills, P. A., p. 685.
Wylie, H. N., p. 794.

LIGHTING

Control of Lighting in Buildings for A.A. Protection (Abstract from *Elektrotechnische Zeitschrift*, Vol. 59, No. 13), *J.*, XLII., p. 840.

LIGHTNING, *see* Meteorology.

LOADING—AERODYNAMIC, *see* Aeroplanes Stability.

LOCK, C. N. H., M,A., F.R.Ae.S.

Problems of High Speed Flight as Affected by Compressibility, *J.*, XLII., p. 193.

LUBRICATION, *see* Engines—Lubrication.

MACHINES—GENERAL

Gear Cutting on Non-Circular Wheels (Abstract from *Maschinenbau*, Vol. 17, July, 1938, pp. 349-350; *Eng. Absts.*, Vol. 1, No. 9, Section 2, September, 1938, pp. 136-7), *J.*, XLII., p. 1132.

Industrial Application of Spiral Bevel Gears and Hypoid Gears (Abstract from *Trans. A.S.M.E.*, Vol. 60, No. 7, October, 1938, pp. 549-560), *J.*, XLII., p. 1133.

MAGNETISM, *see* Electricity and Magnetism.

MAPS

Maps for the Air Force (Abstract from *Air Fleet News, U.S.S.R.*, Vol. 19, No. 9), *J.*, XLII., p. 634.

MATERIALS OF AIRCRAFT CONSTRUCTION

By Dr. H. J. Gough, M.B.E., D.Sc., M.I.Mech.E., F.R.S. Wilbur Wright Memorial Lecture, *J.*, XLII., p. 922.

MATERIALS

Adsorption of Constituents of a Solid Phase on the surface (Abstract from *Nature*, Vol. 141, No. 3558), *J.*, XLII., p. 185.

An Entirely New Method of Surface Finishing (Abstract from *Iron Age*, 8/9/38, pp. 40-45; *Metropolitan Vickers Tech. News Bulletin*, No. 627, 23/9/38), *J.*, XLII., p. 1044.

Ball and Roller Bearings and their Behaviour (Abstract from *Elec. Journal*, April, 1938), *J.*, XLII., p. 632.

Bearing Metals (Abstract from *Power Transmission*, 15/9/38, pp. 471-7; *Metropolitan Vickers Tech. News Bulletin*, No. 627, 23/9/38, p. 7), *J.*, XLII., p. 1044.

Chemical Treating of Surfaces. A New Principle in Lubrication (Abstract from *J. Frank. Inst.*, August, 1938), *J.*, XLII., p. 890.

Coupled Wing Fuselage Vibrations (Abstract from *Aer. Res. Inst., Tokio*, Report No. 160), *J.*, XLII., p. 470.

Damping of Forced Vibrations by Coupled Systems (Abstract from *Forschung*, Vol. 9, No. 5, Sept.-Oct., 1938, pp. 219-228), *J.*, XLII., p. 1046.

Damping of Torsional Vibrations by Liquid Couplings (Abstract from *Z.V.D.I.*, Vol. 82, 4/6/38, pp. 701-3; *Eng. Absts.*, Vol. 1, No. 7, Section 3, August, 1938, p. 114), *J.*, XLII., p. 1044.

On the Forces Acting Between Atoms and Ions and the Physical Properties of Matter in Bulk (Abstract from *Phil. Trans. Roy. Soc.*, Series A, Vol. 237, No. 774), *J.*, XLII., p. 566.

Heinkel Explosive Rivets (Abstract from *Flugsport*, Vol. 30, No. 5), *J.*, XLII., p. 844.

Improved Method for Calculating Free Vibrations Having Several Degrees of Freedom (Abstract from *J. App. Mech.*, Vol. 5, No. 2), *J.*, XLII., p. 750.

Indium Treated Bearing Metals (Abstract from *Met. Vick. Tech. Pub.* 900, April, 1938), *J.*, XLII., p. 749.

On the Influence of Chromium on the Oxidisability of Tungsten at High Temperatures (Abstract from *Aer. Res. Inst., Tokio*, Report No. 161), *J.*, XLII., p. 570.

Luminous Enamels (Abstract from *Z.V.D.I.*, Vol. 82, No. 30), *J.*, XLII., p. 857.

Magnetic Method for Measuring the Thickness of Non-Magnetic Coatings on Iron and Steel (Abstract from *Bur. Stan. J. Res.*, Vol. 20, No. 3), *J.*, XLII., p. 571.

New Test for Dimensional Changes in Offset Papers (Abstract from *Bur. Stan. J. Res.*, Vol. 19, No. 6), *J.*, XLII., p. 244.

Polish on Metals (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 166, No. 925), *J.*, XLII., p. 633.

Pylonol Oil Dope (Abstract from *Aero Digest*, Vol. 32, No. 2), *J.*, XLII., p. 240.

Recent Developments in Magnetic Materials (Abstract from *J. Inst. Elec. Eng.*, Vol. 82, No. 495), *J.*, XLII., p. 481.

Research on Materials and Modern Design (Abstract from *Engineering*, 29/7/38), *J.*, XLII., p. 855.

Riveting Methods and Riveting in Light Metal Aeroplane Construction, by Dr.-Ing. Wilhelm Pleines, *J.*, XLII., p. 761.

Running-in Characteristics of Some White-Metal Bearings (Abstract from *Trans. A.S.M.E.*, Vol. 59, No. 8), *J.*, XLII., p. 101.

Self-Lubricating Materials (Abstract from *Chem. Absts.*, Vol. 32, No. 4), *J.*, XLII., p. 360.

Specific Heat Temperature Curves of Some Age Hardening Alloys (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 168, No. 933, 25/10/38, pp. 237-63), *J.*, XLII., p. 1133.

Studies of Surface Layers of Materials (Abstract from *Science et Ind.* (*Mécha-nique*), No. 21, Nov.-Dec., 1937), *J.*, XLII., p. 476.

Styroflex and its Importance for Construction of Cables (Abstract from *Siemens Verofft Nachrichtentechn*, 1938, No. 1), *J.*, XLII., p. 894.

Thermal Expansion and the Effect of Heat Treatment on the Growth, Density and Structure of Some Heat-Resisting Alloys (Abstract from *Bur. Stan. J. Res.*, Vol. 20, No. 6), *J.*, XLII., p. 854.

MATERIALS—ALUMINIUM

Preliminary Fatigue Studies on Aluminium Alloy Aircraft Girders (Abstract from *N.A.C.A. Tech. Note*, No. 637), *J.*, XLII., p. 476.

MATERIALS—COPPER

Correlation of Creep and Relaxation of Copper (Abstract from *J. App. Mech.*, Vol. 5, No. 2), *J.*, XLII., p. 750.

MATERIALS—CORROSION

Anodic Oxidation of Aluminium and its Alloys, by J. Donaldson Craig, *J.*, XLII., p. 603.

Corrosion Resistance Tests of Aluminium and Its Alloys (Abstract from *Light Metals Rev.*, May, 1938), *J.*, XLII., p. 633.

Electron Diffraction Applied to Corrosion Study (Abstract from *Metals and Alloys*, March, 1938), *J.*, XLII., p. 479.

Electron Diffraction Applied to Corrosion Study (Abstract from *Metals and Alloys*, April, 1938), *J.*, XLII., p. 749.

Hydrodynamic Corrosion of Cylinder Liners (Abstract from *Z. Metallk.*, Vol. 29, No. 12), *J.*, XLII., p. 241.

Protection of Metals by Aluminium (Abstract from *Light Metals*, June, 1938), *J.*, XLII., p. 749.

Rapid Test for Anodic Coatings (Abstract from *Light Metals*, Vol. 1, No. 4), *J.*, XLII., p. 750.

MATERIALS—GLASS

The Properties of Glass for Heat Insulation (Abstract from *Mech. Welding*, 7/10/38, pp. 341-2; *Metropolitan Vickers Tech. News Bulletin*, No. 630, 14/10/38, p. 4), *J.*, XLII., p. 1134.

MATERIALS—LIGHT ALLOYS

New Researches on the Al-Si Alloy (Silumin Gamma) with Special Reference to Aero Engine Requirements (Abstract from *Luftwissen*, Vol. 5, No. 6), *J.*, XLII., p. 751.

MATERIALS—PLASTICS

Synthetic Resins in Aircraft Construction (Composition Properties, Present State of Development and Application to Light Structures) (Abstract from *Luftwissen*, Vol. 4, No. 8), *J.*, XLII., p. 242.

Devices and Tools Made of Reinforced Synthetic Resin for Use in Metal Aircraft Construction (Abstract from *Luftwissen*, Vol. 4, No. 12), *J.*, XLII., p. 185.

Plastics and Electrical Insulation (Abstract from *J. Inst. Elec. Eng.*, October, 1938, pp. 474-87; *Met. Vickers Tech. News Bulletin*, No. 631, 21/10/38, p. 7), *J.*, XLII., p. 1132.

Plastics as Structural Materials for Aircraft (Abstract from *N.A.C.A. Tech. Note*, No. 628), *J.*, XLII., p. 240.

Study of Transparent Plastics for Use on Aircraft (Abstract from *Bur. Stan. J. Res.*, Vol. 19, No. 4), *J.*, XLII., p. 100.

Suitability of Various Plastics for Use in Aeroplane Dopes (Abstract from *Bur. Stan. J. Res.*, Vol. 20, No. 5), *J.*, XLII., p. 749.

MATERIALS—RIVETING

Force Distribution in Riveted Connections of Constant Cross-Sections Under Tensile Loads (Abstract from *L.F.F.*, Vol. 15, 20/1/38), *J.*, XLII., p. 568.

MATERIALS—RUBBER

Electrically Conductive Rubber (Abstract from *El. Rev.*, 3/6/38), *J.*, XLII., p. 749.

The Metalastik Process (Abstract from *Machinery*, 29/9/38, pp. 819-20; *Metropolitan Vickers Tech. News Bulletin*, No. 629, 7/10/38, p. 9), *J.*, XLII., p. 1130.

Photo-elastic Determination of Stresses Around a Circular Inclusion in Rubber (Abstract from *Bur. Stan. J. Res.*, Vol. 20, No. 3), *J.*, XLII., p. 570.

Rubber Mountings (Abstract from *J. App. Mech.*, Vol. 5, No. 1), *J.*, XLII., p. 477.

MATERIALS—STEEL

Crystalline Structure of Steel at Fracture (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 165, No. 922), *J.*, XLII., p. 569.

Electronics in the Production and Fabrication of Steel (Abstract from *Electric J.*, September, 1938, pp. 339-41), *J.*, XLII., p. 1131.

Heat-Resisting Steels (Abstract from *Journal of the Inst. of Fuel*, Vol. 11, No. 58), *J.*, XLII., p. 633.

Influence of Surface Plastic Deformations on the Impact Cold Brittleness of Steel (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 3), *J.*, XLII., p. 101.

Stainless Steel in Aircraft (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 11, September, 1938, pp. 447-454), *J.*, XLII., p. 1045.

MATERIALS—STRENGTH OF, *see* also Mathematics.

Analysis of Bolted Joints at High Temperatures (Abstract from *J. App. Mech.*, Vol. 5, No. 1), *J.*, XLII., p. 477.

Application of the Galerkin Method to the Torsion and Flexure of Cylinders and Prisms (Abstract from *Phil. Mag.*, Vol. 25, No. 169), *J.*, XLII., p. 479.

An Approximate Solution of Several Problems of Stability of a Cylindrical Shell (Abstract from *Centr. Aero-Hydrodyn. Inst. Rept.*, No. 246), *J.*, XLII., p. 890.

Bearing Strength of Steel and Aluminium Alloy Sheet in Riveted and Bolted Joints (Abstract from *J. Aer. Sci.*, Vol. 5, No. 1), *J.*, XLII., p. 185.

Behaviour of a Plate Strip Under Shear and Compressive Stresses Beyond the Buckling Limit (Abstract from *L.F.F.*, Vol. 14, No. 12, 20/12/37, pp. 627-39), *J.*, XLII., p. 1045.

Bending Stresses in Box Beams as Influenced by Shear Deformation (Abstract from *J.S.A.E.*, August, 1938), *J.*, XLII., p. 889.

Buckling of Curved Tension Field Girders (Abstract from *L.F.F.*, Vol. 14, No. 7), *J.*, XLII., p. 478.

The Calculation of Maximum Deflection, Moment and Shear for Uniformly Loaded Rectangular Plates with Clamped Edges (Abstract from *J. App. Mech.*, Vol. 4, No. 4), *J.*, XLII., p. 186.

Circular Beams Loaded Normal to the Plane of Curvature (Abstract from *J. App. Mech.*, Vol. 5, No. 2), *J.*, XLII., p. 751.

Column Strength of Tubes Elastically Restrained Against Rotation at the Ends (Abstract from *N.A.C.A. Report No.* 615), *J.*, XLII., p. 632.

Compression Struts with Non-Progressively Variable Moment of Inertia (Abstract from *L.F.F.*, Vol. 14, No. 9), *J.*, XLII., p. 855.

Creep of Metals at High Temperatures in Bending (Abstract from *J. App. Mech.*, Vol. 5, No. 1), *J.*, XLII., p. 478.

Creep of Metals at High Temperature in Bending (Abstract from *J. App. Phys.*, March, 1938), *J.*, XLII., p. 479.

Creep of Solid Cylinders in Torsion (Abstract from *Trans. Amer. Soc. Metals*, September, 1938, pp. 850-83; *Metropolitan Vickers Tech. News Bulletin*, No. 629, 7/10/38, p. 7), *J.*, XLII., p. 1130.

The Crinkling Strength and the Bending Strength of Aircraft Tubing (Abstract from *N.A.C.A. Report No.* 632, 1938), *J.*, XLII., p. 1045.

Dynamic Strength Properties of Light Metal Alloys at Low Temperatures (Abstract from *Zeit. f. Metallkunde*, July, 1938), *J.*, XLII., p. 891.

Effect of Detonation on Engine Stresses (Abstract from *Autom. Tech. Zeit.*, Vol. 40, No. 24), *J.*, XLII., p. 239.

Effect of Temperature on Physical and Optical Properties of Photo-elastic Materials (Abstract from *J. App. Mech.*, Vol. 5, No. 1), *J.*, XLII., p. 477.

Elastic Limit of Steels Undergoing Fatigue Tests and its Relation to Fatigue Limits, Internal Damping and Notch Sensitivity (Abstract from *Forschung*, Vol. 9, No. 1), *J.*, XLII., p. 362.

Elasticity of Amorphous Bodies (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 8), *J.*, XLII., p. 101.

Elastic Stability of a Curved Plate Under Axial Thrusts, by S. C. Redshaw, Ph.D., M.Sc., Assoc.M.Inst.C.E., A.F.R.Ae.S., *J.*, XLII., p. 536.

Fatigue Failures from Stress Cycles of Varying Amplitude (Abstract from *J. App. Mech.*, Vol. 4, No. 4), *J.*, XLII., p. 186.

The Fatigue Strength of Hollow Crank Pins (Effect of Reinforced Oil Hole) (Abstract from *Z.V.D.I.*, Vol. 82, No. 30), *J.*, XLII., p. 856.

Fatigue Tests of Strengthened Flanges in Welded Tension Bars and Girders (Abstract from *Z.V.D.I.*, Vol. 82, 12/2/38), *J.*, XLII., p. 567.

Flat Plates Under Pressure (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 11, September, 1938, pp. 421-5), *J.*, XLII., p. 1045.

Generalised Analysis of Experimental Observations in Problems of Elastic Stability (Abstract from *N.A.C.A. Tech. Note*, No. 658), *J.*, XLII., p. 889.

Graphical Computation of Stresses from Strain Data (Abstract from *Bur. Stan. J. Res.*, Vol. 19, No. 4), *J.*, XLII., p. 100.

Highest Frequency of Torsional Vibration (Abstract from *Engineer*, 13/5/38), *J.*, XLII., p. 853.

Improvements in the Bearing Qualities of Pistons of Motor-Car Engines (Abstract from *Z.V.D.I.*, Vol. 81, No. 51), *J.*, XLII., p. 471.

Investigation of Stress Conditions in a Full-Size Welded Branch Connection (Abstract from *Trans. A.S.M.E.*, Vol. 60, No. 5), *J.*, XLII., p. 856.

Locomotive Axle Testing (Abstract from *Trans. A.S.M.E.*, Vol. 60, No. 4), *J.*, XLII., p. 634.

Mechanical Analysis of Impact Brittleness (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 4), *J.*, XLII., p. 101.

Method of Calculating Intricate Statical Indeterminable Systems (Abstract from *Trans. Scientific Tech. Soc. of Shipbuilding and Engineering, U.S.S.R.*, Vol. 2, 1936), *J.*, XLII., p. 567.

Method of Design and Experimental Investigation of Box Spars (Abstract from *Rept. Centr. Aero-Hydrodyn. Inst.*, No. 310), *J.*, XLII., p. 890.

Natural Frequencies of Uniform Cantilever Beams of Symmetrical Cross-Section (Abstract from *J. App. Mech.*, Vol. 5, No. 1), *J.*, XLII., p. 567.

New Method Based Upon the Principle of Least Work for the Calculation of Box Girders Subject to Torsion (Abstract from *Richerche de Ingegneria*, Vol. 5, Nov.-Dec., 1937), *J.*, XLII., p. 568.

New Relationship for Use in the Design of Machine Columns (Abstract from *J. App. Mech.*, Vol. 5, No. 2), *J.*, XLII., p. 750.

Note on Galerkin's Method of Treatment of Problems Concerning Elastic Bodies (Abstract from *Phil. Mag.*, Vol. 25, No. 169), *J.*, XLII., p. 478.

Optical Investigation on Three-Dimensional Stress Conditions (Convergent Light) (Abstract from *Forschung*, Vol. 9, No. 2), *J.*, XLII., p. 569.

Ordinary Fracture, Time Limit Fracture and Fatigue Fracture (Appearance of Fracture Under Tension, Bending and Torsion) (Abstract from *Forschung*, Vol. 9, No. 2), *J.*, XLII., p. 568.

Polar Diagrams for the Solution of Deflections of Axially-Loaded Beams (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 9), *J.*, XLII., p. 856.

On the Problem of Stress Distribution in Wide Flanged Box Beams (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 8), *J.*, XLII., p. 854.

Rapid Method for the Determination of Principal Stresses Across Sections of Symmetrical Form from Photo-elastic Data (Abstract from *J. App. Mech.*, Vol. 5, No. 1), *J.*, XLII., p. 477.

Recent Investigations in Plastic Torsion (Abstract from *J. App. Mech.*, Vol. 4, No. 4), *J.*, XLII., p. 186.

Recent Research in Elasticity (Abstract from *J. App. Mech.*, Vol. 4, No. 4), *J.*, XLII., p. 187.

Relation of Wahl Correction Factor to Fatigue Tests on Helical Springs (Abstract from *Trans. A.S.M.E.*, Vol. 60, No. 1), *J.*, XLII., p. 241.

Relaxation Methods Applied to Engineering Problems. II—Basic Theory with Application to Surveying and to Electrical Networks and an Extension to Gyrostatic Systems (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 164, No. 919), *J.*, XLII., p. 364.

Relief of Internal Stress in Castings (Abstract from *Metro-Vick. Gazette*, August, 1938), *J.*, XLII., p. 890.

Researches on the Properties of Heat-Resisting Alloys Used in Internal Combustion Engines (Abstract from *L.F.F.*, Vol. 15, No. 9, 10/9/38), *J.*, XLII., p. 1044.

Shear Distribution in a Sheet Metal Box Spar (Abstract from *J. Aer. Sci.*, Vol. 5, No. 4), *J.*, XLII., p. 476.

The Stability of a Clamped Elliptic Plate Under Uniform Compression (Abstract from *J. App. Mech.*, Vol. 4, No. 4), *J.*, XLII., p. 186.

Strength of a Riveted Steel Rigid Frame having Straight Flanges (Abstract from *Bur. Stan. J. Res.*, Vol. 21, No. 3, September, 1938, pp. 269-313), *J.*, XLII., p. 1131.

Strength of Shell Bodies—Theory and Practice (Abstract from *L.F.F.*, Vol. 14, No. 3), *J.*, XLII., p. 100.

Stress Analysis of Beams with Shear Deformation of the Flanges (Abstract from *N.A.C.A. Report No.* 608), *J.*, XLII., p. 185.

Stresses in Crank Webs—The Disadvantages of Circular Webs (Abstract from *Autom. Tech. Zeit.*, Vol. 40, No. 24), *J.*, XLII., p. 239.

Stresses in Reinforcing Rings Due to Axial Forces in Cylindrical and Conical Stressed Skins (Abstract from *L.F.F.*, Vol. 14, No. 2), *J.*, XLII., p. 478.

On the Tilting of a Grate System Consisting of Two Spars Joined by Ribs (Abstract from *Z.A.M.M.*, Vol. 17, No. 5), *J.*, XLII., p. 99.

Torsional Stability of Cylindrical Shells (Abstract from *J. Aer. Sci.*, Vol. 5, No. 2), *J.*, XLII., p. 241.

Torsion Tests of Tubes (Abstract from *N.A.C.A. Report No.* 601), *J.*, XLII., p. 100.

Twisting Failure of Centrally Loaded Open-Section Columns in the Elastic Range (Abstract from *L.F.F.*, Vol. 14, No. 9), *J.*, XLII., p. 569.

Twisting of Thin-Walled Columns Perfectly Restrained at One End (Abstract from *L'Aerotecnica*, Vol. 17, No. 10), *J.*, XLII., p. 570.

Use of Phenol Formaldehyde in Photo-elastic Investigations (Abstract from *Forschung*, Vol. 9, No. 3), *J.*, XLII., p. 749.

MATERIALS—TESTING

Fatigue Testing of Wing Beams by the Resonance Method (Abstract from *N.A.C.A. Tech. Note*, No. 660), *J.*, XLII., p. 891.

Load Tests on a Stiffened Circular Cylindrical Shell (Abstract from *L.F.F.*, Vol. 14, No. 12), *J.*, XLII., p. 855.

Testing Bearing Metals Under Dynamic Loads (Abstract from *Autom. Tech. Zeit.*, Vol. 40, No. 22), *J.*, XLII., p. 471.

Tests of a $7 \times 10\frac{1}{2}$-inch Bearing at 3,600 r.p.m. (Abstract from *Trans. A.S.M.E.*, Vol. 60, No. 5), *J.*, XLII., p. 852.

MATERIALS—WELDING

Detection of Electric Welding Faults by X-Rays (Abstract from *Welding Industry*, April, 1938), *J.*, XLII., p. 568.

Electrically Welded Joints (Abstract from *Welding Industry*, Sept., 1938, pp. 269-75; *Metropolitan Tech. News Bulletin*, No. 626, 16/9/38, p. 5), *J.*, XLII., p. 1043.

Electrically Welded Joints (Part III) (Abstract from *Welding Journal*, October, 1938, pp. 317-20; *Met. Vickers Tech. News Bulletin*, No. 631, 21/10/38, p. 7), *J.*, XLII., p. 1132.

Metallography of Welding (Abstract from *Welding Journal*, April, 1938), *J.*, XLII., p. 749.

Modern Welding Equipment (Abstract from *Electrical Engineer*, 15/4/38), *J.*, XLII., p. 631.

Resistance Welding Plant for Stainless Steels (Abstract from *Metropolitan Vickers Tech. News Bulletin*, No. 620), *J.*, XLII., p. 854.

Welding of Silicon Steels (Abstract from *Welding Journal*, September, 1938, Suppl., pp. 1-7; *Met. Vickers Tech. News Bulletin*, No. 628, 30/9/38, p. 7), *J.*, XLII., p. 1131.

MATERIALS—WIRE

Enamel Lacquered Wire (Abstract from *Phillips Tech. Rev.*, Feb., 1938), *J.*, XLII., p. 633.

MATERIALS—WOOD

Fire Tests on Treated and Untreated Wood Partitions (Abstract from *Bur. Stan. J. Res.*, Vol. 20, No. 2), *J.*, XLII., p. 478.

Hot-Pressing Technique for Plywood (Abstract from *Trans. A.S.M.E.*, Vol. 60, No. 1), *J.*, XLII., p. 241.

Stability of Plywood Plates (Abstract from *Aeron. Eng.* (*U.S.S.R.*), No. 9, Sept., 1937), *J.*, XLII., p. 185.

MATHEMATICS, *see* also Materials—Strength of.

On Bi-Partitional Functions (Abstract from *Phil. Trans. Roy. Soc.*, Series A, Vol. 237, No. 780), *J.*, XLII., p. 859.

An Electric Mechanical Method for Solving Equations (Abstract from *R.C.A. Review*, July, 1938), *J.*, XLII., p. 892.

Generalised Theorem of Three Moments for the Case of Parabolic Lateral Loading, by Capt. J. Morris, B.A., *J.*, XLII., p. 159.

Geometrical Considerations on Picard's Method of Iteration (Abstract from *Z.A.M.M.*, Vol. 17, No. 6), *J.*, XLII., p. 242.

The Graphical Solution of Ordinary Differential Equations (Abstract from *Phil. Mag.*, Vol. 26, No. 173), *J.*, XLII., p. 859.

Note on the Effect of Rotation on the Frequencies of Lateral Vibrations of a Rod, by J. Morris, B.A., *J.*, XLII., p. 1084.

On the Notation of Resonance for Non-Linear Vibrations (Abstract from *Z.A.M.M.*, Vol. 17, No. 5), *J.*, XLII., p. 99.

Mechanical Solutions of Algebraic Equations (Abstract from *J. Frank. Inst.*, Vol. 225, No. 1), *J.*, XLII., p. 243.

Note on Approximations to Functions and the Solution of Differential Equations (Abstract from *Phil. Mag.*, Vol. 25, No. 170), *J.*, XLII., p. 634.

Relaxation and Iteration, by J. Morris, B.A., *J.*, XLII., p. 613.

Solution of Variable Circuits by Matrices (Abstract from *J. Frank. Inst.*, Vol. 224, No. 6), *J.*, XLII., p. 189.

On Some Plane Boundary Value Problems in Theory of Elasticity (Abstract from *Z.A.M.M.*, Vol. 17, No. 5), *J.*, XLII., p. 99.

MEDICAL

Influence of Aviation Medicine on Aircraft Design and Operation (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 5), *J.*, XLII., p. 480.

Physiological Considerations Governing High Altitude Flight (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 5), *J.*, XLII., p. 479.

The Special Duties of a Medical Officer Attached to a Squadron (Abstract from *Luftwehr*, Vol. 5, No. 8, August, 1938, pp. 324-326), *J.*, XLII., p. 1048.

Water Purification by Ozone (Abstract from *Electrician*, 22/4/38), *J.*, XLII., p. 572.

METEOROLOGY, *see* also De-Icing.

The Determination of the Meteorological Conditions of the Atmosphere by the Use of Radio Sounding Balloons (Abstract from *Proc. Roy. Soc.*, Vol. 167, No. 929, 5/8/38), *J.*, XLII., p. 891.

Determination of the Size and Electrical Charge of Dust and Fog Particles (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 7), *J.*, XLII., p. 102.

Electricity in Rain. A Discussion of Records Obtained at Kew Observatory, 1935-36 (Abstract from *M.O. Geophysical Memoir*, No. 75, 1938), *J.*, XLII., p. 752.

Ice Formation in Clouds in Great Britain (Abstract from *M.O. Professional Note*, No. 81, 1937), *J.*, XLII., p. 242.

Long-Range Weather Forecasting (Abstract from *Nature*, Vol. 141, No. 3558), *J.*, XLII., p. 187.

Materials for Artificial Fogs (Abstract from *Chemisch Weekblad*, Vol. 34, No. 4), *J.*, XLII., p. 93.

The Measurement of Sand Storms (Abstract from *Proc. Roy. Soc.*, Vol. 167, No. 929, 5/8/38), *J.*, XLII., p. 892.

Mechanics of the Atmosphere (Abstract from *La Science et la Vie*, No. 245, Nov., 1937), *J.*, XLII., p. 102.

Method for the Investigation of Upper Air Phenomena and its Application to Radio Meteorography (Abstract from *Bur. Stan. J., Res.*, Vol. 20, No. 3), *J.*, XLII., p. 571.

A Method for the Investigation of Upper Air Phenomena and its Application to Radio Meteorography (Abstract from *Proc. Inst. Rad. Eng.*, Vol. 26, No. 10, October, 1938, pp. 1235-65), *J.*, XLII., p. 1135.

Point Discharge Currents During Thunderstorms (Abstract from *Phil. Mag.*, No. 166, Jan., 1938), *J.*, XLII., p. 187.

Progressive Lightning (Abstract from *Proc. Roy. Soc., Series A*, Vol. 166, No. 924), *J.*, XLII., p. 635.

Progressive Lightning. IV—The Discharge Mechanism (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 164, No. 916), *J.*, XLII., p. 187.

Rôle of Meteorology in Gas Attacks (Abstract from *Meteorologia and Hydrologia, U.S.S.R.*, No. 4, April, 1938), *J.*, XLII., p. 735.

The Thermodynamics of Open Systems Applied to the Problem of Rain Production (Abstract from *Forschung*, Vol. 9, No. 5, Sept.-Oct., 1938, p. 260), *J.*, XLII., p. 1048.

Use of Aircraft for the Dispersion of Hail-storms (Abstract from *Les Ailes*, No. 864, 6/1/38), *J.*, XLII., p. 242.

MISCELLANEOUS

Mineral Deposits of Strategic Importance in the Countries Bordering on Greater Germany (Abstract from *W.T.M.*, Vol. 42, No. 7), *J.*, XLII., p. 876.

The Law of Error and the Combination of Observations (Abstract from *Phil. Trans. Roy. Soc.*, Vol. 237, No. 237, 14/4/38), *J.*, XLII., p. 892.

Aeronautical Consequences of the Berlin-Rome "Axis" (Abstract from *Les Ailes*, No. 864, 6/1/38), *J.*, XLII., p. 234.

MOORE-BRABAZON, LT.-COL. J. T. C., F.R.Ae.S.

Some Considerations on the Reaction of Wind Upon Sails, *J.*, XLII., p. 867.

MORRIS, CAPTAIN J., B.A.

The Generalised Theorem of Three Moments for the Case of Parabolic Lateral Loading, *J.*, XLII., p. 159.

Relaxation and Iteration, *J.*, XLII., p. 613.

The Stressing of a Tail Boom System for Fin and Rudder Side Loads, *J.*, XLII., p. 872.

MORRIS, J.

Note on the Effect of Rotation on the Frequencies of Lateral Vibrations of a Rod, *J.*, XLII., p. 1084.

OXYGEN APPARATUS, *see* Aeroplanes.

PAPER, *see* Materials—General

PARACHUTES

World's Parachute Record (Delayed Opening) (Abstract from *L'Aeronautique*, Vol. 20, No. 229), *J.*, XLII., p. 840.

PATENT SPECIFICATIONS

Abstracts of, *J.*, XLII., p. 247.

Abstracts of, *J.*, XLII., p. 637.

Abstracts of, *J.*, XLII., p. 897.

PHOTOGRAPHY

Application of Aerial Photogrammetry to the Determination of Aircraft Speeds and Training in Bomb Dropping (Abstract from *Report of 4th International Congress on Photogrammetry, Paris*, 1934), *J.*, XLII., p. 475.

On the Blocking Layer Photo-electric Effects of Caesium Oxide (Abstract from *Phil. Mag.*, Vol. 25, No. 167), *J.*, XLII., p. 363.

Dimensional Changes in Aerial Photographic Film and Paper (Abstract from *Bur. Stan. J. Res.*, Vol. 19, No. 6), *J.*, XLII., p. 243.

New Method of Infra-Red Photography (Abstract from *Phys. Zeit.*, Vol. 38, No. 23), *J.*, XLII., p. 243.

Non-Shrinking Films for Aerial Photography (Abstract from *Pub. Sci. et Tech.*, No. 116, 1937), *J.*, XLII., p. 362.

Photographic Sensitivity and the Reciprocity Law at Low Temperatures (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 168, No. 933, 25/10/38, pp. 168-75), *J.*, XLII., p. 1133.

Photothermometry (Abstract from *Archiv für Warmewirtschaft*, Vol. 19, No. 2), *J.*, XLII., p. 363.

Rapid Method for Obtaining Negatives in Aerial Photography (Abstract from *Pub. Sci. Tech. Ministere de l'Air*, No. 79, 1938), *J.*, XLII., p. 893.

Seeing the Unseen (Abstract from *Mechanical Engineering, U.S.A.*, Vol. 60, No. 3), *J.*, XLII., p. 746.

Stability of the Viscose Type of Ozaphane Photographic Film (Abstract from *Bur. Stan. J. Res.*, Vol. 21, No. 3, September, 1938, pp. 347-52), *J.*, XLII., p. 1133.

Theory of Photolysis of Silver Bromide and the Photographic Latent Energy (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 164, No. 917), *J.*, XLII., p. 363.

PILOTS AND PILOTING

Cost of Training for Pilot's Licence and Cost of Practice Flight for Members of the N.S.F.K. (National Socialist Flying Corps) (Abstract from *Luftwissen*, Vol. 5, No. 7), *J.*, XLII., p. 841.

Ground Training for Instrument Flying (Abstract from *J.S.A.E.*, Vol. 43, No. 4, 1938, p. 20), *J.*, XLII., p. 1129.

Training of the Air Force Officer (Abstract from *Rev. de l'Arm. de l'Air*, No. 102), *J.*, XLII., p. 840.

PISTONS AND PISTON RINGS, *see* Engines—Pistons

PLASTICS, *see* Materials—Plastics.

PLEINES, DR.-ING. WILHELM

Riveting Methods and Riveting in Light Metal Aeroplane Construction, *J.*, XLII., p. 761.

RADIATORS, *see* Aerodynamics.

RADIO CONTROL OF AIRCRAFT, *see* Aeroplanes—Control.

REDSHAW, S. C., Ph.D., M.Sc., Assoc.-M.Inst.C.E., A.F.R.Ae.S.
The Elastic Stability of a Curved Plate under Axial Thrusts, *J.*, XLII., p. 536.

RELF, ERNEST F., A.R.C.Sc., F.R.Ae.S., F.R.S.
Recent Research on the Improvement of the Aerodynamic Characteristics of Aircraft. *J.*, XLII., p. 513.

REMOTE CONTROL
Remote Control with Siemens Equipment Employing the Selector Process (Abstract from *Siemen's Zeitschrift*, August, 1938, pp. 402-6; *Metropolitan Tech. News Bulletin*, No. 627, 23/9/38, p. 18). *J.*, XLII., p. 1046.
Thermionic Trigger (Abstract from *J. Sci. Inst.*, Vol. 15, No. 1), *J.*, XLII., p. 245

REPORTS
Twenty-Third Annual Report of the National Advisory Committee for Aeronautics, 1937 (Abstract), *J.*, XLII., p. 233.

RESEARCH
High-Speed Camera for Propeller Research (Abstract from *Eng. Absts.*, No. 76, Oct. 1937), *J.*, XLII., p. 99.
New Aircraft Research Apparatus Utilising the Scratch Method (Abstract from *L.F.F.*, Vol. 14, No. 8), *J.*, XLII., p. 98.
New Single-Cylinder Test Plant of the D.V.L. (Abstract from *Autom. Tech. Zeit.*, Vol. 40, No. 24), *J.*, XLII., p. 472.

RESISTANCE, *see* Aerodynamics.

REVIEWS
Aero and Auto Engine Facts and Data, by H. R. Langman, *J.*, XLII., p. 107.
Aerodromes. A Research Monograph of the Scientific Institute for Air Transport, Technical College, Stuttgart, *J.*, XLII., p. 1150.
Aeronautical Glossary (German text), by K. Anders and H. Eichelbaum, *J.*, XLII., p. 758.
Aeroplane Design, by E. W. C. Wilkins, B.Sc., A.F.R.Ae.S., *J.*, XLII., p. 288.
Aeroplane Stability and Performance Calculations with Applications to Flying Practice (text in German), by G. Otto, *J.*, XLII., p. 191.
The Air Almanac (A.P. 1602) 1937, *J.*, XLII., p. 107.
The Aircraft Bench Fitter, by William S. B Townsend, *J.*, XLII., p. 106.
Aircraft Propeller Handbook, by Karl H. Falk, *J.*, XLII., p. 1151.
Aircraft Radio, by D. Hay Surgeoner, *J.*, XLII., p. 482.
Airplane Maintenance, by John H. Younger, P. H. D. Allan, F. Bonnalie and Nairne F. Ward, *J.*, XLII., p. 190.
Air Power (German text), by P. A. Fischer von Poturzyn, *J.*, XLII., p. 367.
Air Rule of the Road and Air Legislation, by Lieut.-Commander K. Sinnocks, *J.*, XLII., p. 192.
Angewandte Lastannahmen Ueker Groesse und Angriff von Luftkraeften an Flugzeugen (German text), by G. Siegel, *J.*, XLII., p. 863.
Astronomical Navigation Made Easy, by G. W. Ferguson, *J.*, XLII., p. 574.
The 1/500,000 Aviation Map of Great Britain, *J.*, XLII., p. 572.
The Chosen Instrument, by Norman Macmillan, *J.*, XLII., p. 574.
The Clouds Remember, by Leonard Bridgeman, *J.*, XLII., p. 759.
The Colouring of Metals (German text), by Hugo Krause, *J.*, XLII., p. 108.
Design and Calculation of Aeroplanes. Vol. II—Fuselages (German text), by G. Otto, *J.*, XLII., p. 365.
Duralumin and its Heat Treatment, by P. Litherland Teid, *J.*, XLII., p. 191.
Early Birds, by Alfred Instone, *J.*, XLII., p. 1151.
"Einfuchrung in die Technische Schwingungslehre" (German text), by Dr.-Ing. Karl Klotter, *J.*, XLII., p. 862.
Engineering Mechanics. Vol. I—Statics. Vol. II—Dynamics, by S. Timoshenko and D. N. Young, *J.*, XLII., p. 575.
Fighting Planes of the World, by Commander E. C. Talbot-Booth, R.N.R., *J.*, XLII., p. 368.
"Flight" Handbook. A Guide to Aeronautics, by W. O. Manning, *J.*, XLII., p. 862.
Flugzeug Typenbuch-Handbuch der Deutschen Luftfahrt-Industrie, Publ. by Herm. Beyer Verlag, *J.*, XLII., p. 1053.
Flugzeugwartung I, die Wartung des Triebwerks, *J.*, XLII., p. 1054.
Fortschritte in Luftfahrt und Flugtechnik, by W. Zuerl, *J.*, XLII., p. 1053.
Free-lance Pilot, by Norman Macmillan, *J.*, XLII., p. 107.
Der Frontflieger, by Baron E. von Loewenstein, *J.*, XLII., p. 920.
Glossary of Navigation, by J. B. Harbord, *J.*, XLII., p. 1150.
Handbook of Aeronautics, Vol. II, *J.*, XLII., p. 289.
Handbook of Aeronautics, Vol. III, *J.*, XLII., p. 757.
Handbook of Aeronautics, Vol. IV (German text), edited by Dr.-Ing. Roland Eisenlohr, *J.*, XLII., p. 365.
History of Aeronautics. A Selected List of References to Material in the New York Public Library, compiled by W. B. Gamble, *J.*, XLII., p. 365.
Hughes' Tables for Sea and Air Navigation, *J.*, XLII., p. 1151.

Instruction Manual for the Air Force (German text), *J.*, XLII., p. 652.
Jahrbuch 1937/38 der Deutschen Akademie der Luftfahrtforschung, *J.*, XLII., p. 919.
Die Knickfestigkeit eines Zeutrisch Gedrueckten, gerades Stabes im elastischen und unelastischen Bereich, *J.*, XLII., p. 1054.
Koehler's Illustrierter Flieger-Kalendar (German text), *J.*, XLII., p. 864.
"Leitwerk," Vol. III of "Entwurf und Berechnung von Flugzeugen," G. Otto, *J.*, XLII., p. 918.
Die Luftwaffe der Gegenwart (German text), by G. W. Feuchter, *J.*, XLII., p. 864.
Physik der Luftfahrt (German text), by J. Schnippenkoetter and Th. Weyres, *J.*, XLII., p. 863.
Machine Drawing for Students, by F. J. Price, B.Sc., *J.*, XLII., p. 289.
Martin's Air Navigation, by C. W. Martin, *J.*, XLII., p. 573.
The Menace of the Clouds, by Air Commodore L. E. O. Charlton, C.B., C.M.G., D.S.O., *J.*, XLII., p. 288.
Metal Aircraft for the Mechanic, by J. Healey, *J.*, XLII., p. 759.
Metallography, by C. H. Desch, D.Sc., F.R.S., *J.*, XLII., p. 191.
Muscle Power Flight, by H. G. Schulze and W. Stiasny, *J.*, XLII., p. 759.
My Life, by Jean Batten, *J.*, XLII., p. 756.
Notes on Supercharging, by C. E. Jones.
Over the North Pole, by George Baidukov, *J.*, XLII., p. 757.
About Petroleum, by J. C. Crowther, *J.*, XLII., p. 756.
Principles and Practice of Lubrication, by Alfred W. Nash and A. R. Bowey, *J.*, XLII., p. 190.
Schwimmende Inseln, Flughilfsschiffe, Zwillingsflugzeug, etc. (German text), by Walter Zuerl, *J.*, XLII., p. 864.
Die Seemannschaft in der Luftwaffe (German text), by Captain Th. E. Soennichsen, *J.*, XLII., p. 862.
Royal Air Force and Air Forces of the British Empire Year Book, 1938, compiled by Leonard Bridgman, *J.*, XLII., p. 576.
The Science of Petroleum. A Comprehensive Treatise of the Principles and Practice of the Production, Refining, Transport and Distribution of Mineral Oil (four Volumes), *J.*, XLII., p. 366.
Steels for the User, by R. T. Rolfe, *J.*, XLII., p. 106.
Struggle for the Conquest of the Air (German text), by Paul Kettel, *J.*, XLII., p. 652.
Synoptic and Aeronautical Meteorology, by H. R. Byers, Sc.D., *J.*, XLII., p. 108.
Tables for Aircraft Construction (German text), by Joachim Bittner, *J.*, XLII., p. 758.
Teach Yourself to Fly, by Nigel Tangye, *J.*, XLII., p. 918.
Timber—Its Structure and Properties, by H. E. Desch, *J.*, XLII., p. 1149.
Tradesmanship in Aeronautical Production (German text), by R. Hofmann, *J.*, XLII., p. 652.
Ventilators (German text), by Bruno Eck, *J.*, XLII., p. 758.
Das Verschwindfahrwerk (The Retractable Undercarriage), by Walter Zuerl, *J.*, XLII., p. 1149.
"Werkstoffkunde fuer den Flugzeug- und Motorenbau," by Cl. Boehne, *J.*, XLII., p. 919.
Wireless Direction Finding, by R. Keen, *J.*, XLII., p. 1152.
Women with Wings, by Pauline Gower, *J.*, XLII., p. 756.

RHINES, T. B., F. W. THOMAS AND F. W. CALDWELL
Practical Airscrew Performance Calculations, *J.*, XLII., p. 5.

RICHARDSON, E. G., B.A., Ph.D., D.Sc.
Manipulation of the Boundary Layer, *J.*, XLII., p. 816.

RIVETING, *see* Materials—Riveting

RIVETS—RESISTANCE DUE TO, *see* Aerodynamics.

ROCKET PROPULSION
Flight Analysis of the Sounding Rocket (Abstract from *J., Aeron. Sci.*, Vol. 5, No. 5), *J.*, XLII., p. 474.

ROTORCRAFT, *see* also Helicopters.
Analytical Comparison of Helicopter and Aeroplane in Level Flight (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 11, Sept., 1938, pp. 431-5), *J.*, XLII., p. 1039.
Fixed Wing Gyroplanes (Abstract from *Airc. Eng.*, Vol. 10, No. 108), *J.*, XLII., p. 233.
Focke Helicopter (Abstract from *Luftwissen*, Vol. 5, No. 2), *J.*, XLII., p. 352.
The Hafner Gyroplane, by Raoul Hafner, *J.*, XLII., p. 109.
Lessons to be Drawn from Natural Flight and their Application to the Problem of the Hovering Helicopter, with Some Remarks on the Helicostat (Abstract from *Comp. Rend.*, Vol. 204, No. 19), *J.*, XLII., p. 626.
New Records by the F.W.61 Helicopter (Abstract from *Flugsport*, Vol. 29, No. 23), *J.*, XLII., p. 90.
Performance and Control of Rotary Wing Aircraft (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 7), *J.*, XLII., p. 741.
Static Thrust Analysis of the Lifting Airscrew (Abstract from *N.A.C.A. Tech. Note*, No. 626), *J.*, XLII., p. 178.

Study of the Torque Equilibrium of an "Autogiro" Rotor (Abstract from *N.A.C.A. Report No.* 623), *J.*, XLII., p. 739.

ROYAL AERONAUTICAL SOCIETY
Acknowledgments, *J.*, XLII,
Additions to the Library, 1938, *J.*, XLII., p. 1138.
Annual General Meeting, *J.*, XLII,
Balance Sheet and Accounts, 1937, *J.*, XLII, p. 282.
Branches, *J.*, XLII, p. 278.
Branch Lectures, *J.*, XLII, p. 275.
Committees of Council, 1937-38, *J.*, XLII, p. 271.
Council and Officers, 1937-38, *J.*, XLII, p. 270.
Donations, *J.*, XLII, p. 272.
Council Dinner, *J.*, XLII.
Endowment Fund, *J.*, XLII, p. 273.
Elections, *J.*, XLII.
Examinations, *J.*, XLII.
Garden Party, *J.*, XLII, p. 274.
Honours, *J.*, XLII.
Journal, *J.*, XLII, p. 280.
Lecture Programme, *J.*, XLII, p. 275.
Library, *J.*, XLII, p. 273.
Medals and Awards, *J.*, XLII.
Membership, *J.*, XLII, p. 272.
Obituaries, *J.*, XLII.
Presidents and Vice-Presidents, 1937-38, *J.*, XLII, p. 270.
Presidential Address, *J.*, XLII.
Public Schools' Lectures, *J.*, XLII, p. 278.
Reception, *J.*, XLII, p. 274.
Representatives of the Society on Other Bodies, 1937-38, *J.*, XLII, p. 271.
Seventy-Third Annual Report of Council, 1937-38, *J.*, XLII, p. 270.
Students' Section, *J.*, XLII, p. 277.
Summary of Activities, December, 1937, to December, 1938, *J.*, XLII.
Twenty-Sixth Wilbur Wright Memorial Lecture, *J.*, XLII.

RUBBER, *see* Materials—Rubber.

SAIL PLANES, *see* Gliders and Gliding.

SAILS—SOME CONSIDERATIONS ON THE REACTION OF WIND UPON
Lieut.-Col. J. T. C. Moore-Brabazon, F.R.Ae.S., *J.*, XLII, p. 867.

SEAPLANES
Graphical Determination of the Resistance Coefficient and Hydrodynamic Moment Acting on a Hydroplane Fitted with Wings and Determination of the Test Wing Setting (Abstract from *L'Aerotecnica*, Vol. 18, No. 1), *J.*, XLII., p. 466.
Investigation on Landing Impact of Seaplanes (Abstract from *Scientific Tech. Soc. of Shipbuilding and Engineering*, Vol. 2, 1936), *J.*, XLII., p. 565.
Hydrodynamic and Aerodynamic Tests of Models of Floats for Single-Float Seaplanes (Abstract from *N.A.C.A. Tech. Note*, No. 656), *J.*, XLII., p. 882.
Tank Tests to Show the Effect of Rivet Heads on the Water Performance of a Seaplane Float (Abstract from *N.A.C.A. Tech. Note*, No. 657), *J.*, XLII., p. 883.

SHENSTONE, B. S., A.F.R.Ae.S.
Some Sailplane Design Data and Information from German Sources, *J.*, XLII, p. 701.

SILENCING, *see* Acoustics; Engines.

SLIPSTREAM, *see* Aeroplanes—Control.

SMOKE, *see* Gases.

SOUND, *see* Acoustics.

SPARKING PLUGS, *see* also Electricity and Magnetism; Engines.

STABILITY, *see* Aeroplanes—Stability; Aeroplanes—Wings.

STEEL, *see* Materials—Steel.

STRATOSPHERE
Engineering Aspects of Commercial High Altitude Flying, by Professor J. E. Younger, *J.*, XLII., p. 1055.
Nearing the Stratosphere (Abstract from *J. Aer. Sci.*, Vol. 5, No. 4), *J.*, XLII., p. 467.
Structural and Mechanical Problems Involved in Pressure (Supercharged) Cabin Design (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 5), *J.*, XLII., p. 469.
Supercharging a Pressure Cabin Aeroplane (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 5), *J.*, XLII., p. 469.
The Trend Towards Higher Altitudes in Commercial Air Transport (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 5), *J.*, XLII., p. 470.

STRENGTH OF MATERIALS, *see* Materials—Strength of.

STRESSING OF A TAIL BOOM SYSTEM FOR FIN AND RUDDER SIDE LOADS
J. Morris, B.A., *J.*, XLII, p. 872.

SUPERCHARGERS, *see* Engines—Supercharging; Engines—Heavy Oil.

SURVEY—AERIAL
Aerial Survey in Exploration Work (Abstract from *J. Inst. Petrol. Tech.*, Vol. 24, No. 174), *J.*, XLII., p. 572.
New 400-Degree Partition (of the Circle) (Abstract from *Eng. Absts.*, Vol. 1, No. 4), *J.*, XLII., p. 635.

THOMAS, F. M., F. W. CALDWELL AND T. B. RHINES
Practical Airscrew Performance Calculations, *J.*, XLII, p. 5.

TURBULENCE, *see* also Fluid Motion; Hydrodynamics.

VALVES, *see* Engines.

VESSEY, H. F., B.Sc., A.F.R.Ae.S.

The Effect of Wing Loading on the Design of Modern Aircraft with Particular Regard to the Take-off Problem, *J.*, XLII, p. 369.

VIBRATION, *see* Materials; Instruments.

VIBRATIONS—DAMPING OF, *see* Materials.

WARFARE—AERIAL, *see* also Balloons; Lighting; Wireless.

Aerial Attack on a Large Town (Abstract from *Rev. de l'Armée de l'Air*, No. 99, October, 1937), *J.*, XLII., p. 93.

Aerial Combat. The Probability of Hitting Target as a Function of the Rate of Fire (Abstract from *Rev. de l'Arm. de l'Air*, No. 100, November, 1937), *J.*, XLII., p. 178.

Aerial Warfare in Spain from the Republican Point of View (Abstract from *L'Aerophile*, Vol. 46, No. 3), *J.*, XLII., p. 462.

Air Attacks on Barcelona (Abstract from *Les Ailes*, No. 881, 5/5/38), *J.*, XLII., p. 555.

Aircraft Armament Research in 1910-11 (Abstract from *Rev. de l'Arm. de l'Air*, No. 105, April, 1938), *J.*, XLII., p. 619.

Aircraft v. Battleship (Abstract from *Rev. de l'Arm. de l'Air*, No. 102, January, 1938, pp. 59-66), *J.*, XLII., p. 1033.

Aircraft and Chemical Warfare (Abstract from *Chemisch Weekblad*, Vol. 34, No. 4), *J.*, XLII., p. 92.

Aircraft Reconnaissance at Night (Abstract from *W.T.M.*, Vol. 42, No. 3), *J.*, XLII., p. 555.

Air Force on Trial. Lessons of Abyssinia, Spain and China (Abstract from *L'Air*, No. 440, 1/3/38), *J.*, XLII., p. 462.

Air Power and Troop Movement (Abstract from *Coast Artillery Journal*, No. 3, May-June, 1938), *J.*, XLII., p. 736.

Anti-Aircraft Shells Detonated by Light Rays (Abstract from *Rev. de l'Arm. de l'Air*, No. 101, December, 1937), *J.*, XLII., p. 235.

Army Co-operation. Light Aircraft v. Autogyro (Abstract from *Rev. de l'Arm. de l'Air*, No. 101, December, 1937), *J.*, XLII., p. 235.

Army Co-operation as the Main Objective of the Air Force (Abstract from *Rev. de l'Arm. de l'Air*, No. 102), *J.*, XLII., p. 839.

The Attack on Aerial Bases (Abstract from *Rev. de l'Arm. de l'Air*, June, 1938), *J.*, XLII., p. 879.

Attack on Crops by Means of "Fire Rain" (from the Russian) (Abstract from *Luftwehr*, Vol. 4, No. 10/11), *J.*, XLII., p. 178.

Balloon Barrages and Atmospheric Electricity (Abstract from *Luftwehr*, Vol. 5, No. 2), *J.*, XLII., p. 555.

Bomb Attacks on Railway Lines and Stations (Abstract from *Luftwehr*, Vol. 5, No. 1), *J.*, XLII., p. 347.

Bombing Operations in the Zone of the Interior (Abstract from *Coast Artillery Journal*, No. 3, May-June, 1938), *J.*, XLII., p. 736.

Conditions for the Successful Strategical Employment of an Air Force (Abstract from *Rev. de l'Arm. de l'Air*, August, 1938), *J.*, XLII., p. 878.

Co-operation between Tanks and Aircraft (Austrian and German Military Opinions) (Abstract from *Rev. de l'Arm. de l'Air*, No. 101, December, 1937), *J.*, XLII., p. 235.

The Defence of Aerial Bases (Abstract from *Luftwehr*, June, 1938), *J.*, XLII., p. 1116.

The Effect of the Weather on the Spotting of Aircraft by Sound Waves (Abstract from *Luftwehr*, Vol. 5, No. 7), *J.*, XLII., p. 877.

Fighters v. Modern Bombers (Abstract from *Rev. de l'Arm. de l'Air*, No. 103, February, 1938), *J.*, XLII., p. 621.

The Fighting Aeroplane. Will Multi-Seater Combat Planes Challenge the Flying Fortress? (Abstract from *Army Ord.*, Vol. 19, No. 110, Sept.-Oct., 1938, pp. 79-84), *J.*, XLII., p. 1044.

Fire Sectors on Aircraft (Abstract from *Rev. de l'Arm. de l'Air*, August, 1938), *J.*, XLII., p. 878.

Forecasts from the War in Spain (Abstract from *Army Ordnance*, Vol. 18, No. 107 (from the Italian)), *J.*, XLII., p. 461.

Formation Flying for Bombers (Abstract from *Rev. de l'Arm. de l'Air*, No. 105, April, 1938), *J.*, XLII., p. 618.

French Views on the Employment of Army Co-operation Machines (Abstract from *Luftwehr*, Vol. 5, No. 8, August, 1938, pp. 312-313), *J.*, XLII., p. 1035.

Italian Air Force Manœuvres at Furbara in Connection with Hitler's Visit (Abstract from *Luftwehr*, Vol. L, No. 6), *J.*, XLII., p. 841.

Lessons of the War in Spain. Efficiency of Bombing Attacks Approaching from the Sea (Abstract from *Inter. Avia.*, No. 558, 5/7/38), *J.*, XLII., p. 737.

Lessons from the Spanish Aerial War (Abstract from *Les Ailes*, No. 884, 26/5/38), *J.*, XLII., p. 618.

On the Lessons to be Drawn from the Spanish Aerial War (Abstract from *L'Aeronautique*, Vol. 20, No. 227), *J.*, XLII., p. 618.

On the Maximum Error in a Series and the Dispersion of a Volley (Abstract from *Z.A.M.M.*, Vol. 18, No. 2), *J.*, XLII., p. 617.

Military Application of Light Aeroplanes (Abstract from *Rev. de l'Arm. de l'Air*, No. 105, April, 1938), *J.*, XLII., p. 619.

Military Aspects of Civil Aviation (Abstract from *Rev. de l'Arm. de l'Air*, No. 105, April, 1938), *J.*, XLII., p. 619.

The Mathematics of Air Raid Protection (Abstract from *Nature*, Vol. 142, No. 3600), *J.*, XLII., p. 1117.

The Need of Aircraft Observers for Ground Artillery (Abstract from *Rev. de l'Arm. de l'Air*, No. 111, October, 1938), *J.*, XLII., p. 1118.

Opinions on the Technical Aspects of the Spanish War (Abstract from *W.T.M.*, Vol. 42, No. 10), *J.*, XLII., p. 1119.

Possibilities of Modern Warfare (Abstract from *Rev. de l'Arm. de l'Air*, No. 107, June, 1938), *J.*, XLII., p. 737.

Principles of Aerial Warfare in U.S.S.R. I—Light and Heavy Bombers (Abstract from *Luftwehr*, Vol. 5, No. 1), *J.*, XLII., p. 347.

Replacement of Aircraft Material During the World War (Abstract from *Luftwehr*, July, 1938), *J.*, XLII., p. 877.

Spanish Civil War. Franco's Claims as to Losses Inflicted on the Government Air Force (Abstract from "*The Aeroplane*," Vol. 55, No. 1428, 5/10/38, p. 407), *J.*, XLII., p. 1034.

Training of the Aircraft Observer (Abstract from *Rev. de l'Arm. de l'Air*, No. 102), *J.*, XLII., p. 839.

What We Have Learnt So Far from the Spanish Civil War (Abstract from *La Science et la Vie*, No. 245, November, 1937), *J.*, XLII., p. 94.

WELDING, *see* Materials—Welding.

WIND INDICATORS, *see* Aerodromes.

WIND TUNNELS

The Dornier Wind Tunnel (Abstract from *L.F.F.*, 20/3/38), *J.*, XLII., p. 879.

WIRE, *see* Materials—Wire.

WIRELESS

Application of the Phase Integral Method to the Analysis of the Diffraction and Refraction of Wireless Waves Round the Earth (Abstract from *Phil. Trans. Roy. Soc.*, Series A, Vol. 237, No. 778), *J.*, XLII., p. 857.

Constants of Fixed Antennæ on Aircraft (Abstract from *Proc. Inst. Rad. Eng.*, Vol. 26, No. 4), *J.*, XLII., p. 572.

Detection of Aircraft by Short Wireless Waves (Abstract from *Rev. de l'Arm. de l'Air*, No. 104, March, 1938), *J.*, XLII., p. 736.

Development of the Spark Discharge (Abstract from *Proc. Roy. Soc.*, Series A, Vol. 166, No. 924), *J.*, XLII., p. 636.

Direct Determination of the Electrical Constants of Soil at Ultra-High Radio Frequency (Abstract from *Phil. Mag.*, Vol. 25, No. 170), *J.*, XLII., p. 635.

Directional Recording of Radio Atmospherics (Abstract from *J. Inst. Elec. Eng.*, Vol. 82, No. 495), *J.*, XLII., p. 480.

Electrical Interference with Radio Reception (Abstract from *J. Inst. Elec. Eng.*, Vol. 83, No. 501, September, 1938, pp. 345-94), *J.*, XLII., p. 1050.

Electro-Magnetic Wave Fields Near the Earth's Surface (Abstract from *Proc. Inst. Radio Engineers*, Vol. 25, No. 11), *J.*, XLII., p. 104.

Experiments on the Propagation of Ultra-Short Wireless Waves (Abstract from *H.F.T.*, Vol. 52, No. 2, August, 1938, pp. 37-44. In course of translation), *J.*, XLII., p. 1049.

Heat Transfer by Radiation and the Calculation of Grid Temperatures in Wireless Valves (Abstract from *Forschung*, Vol. 8, No. 6), *J.*, XLII., p. 245.

How Ultra-Short Waves Overcome the Curvature of the Earth by Refraction (Abstract from *H.F.T.*, Vol. 52, No. 2, August, 1938, pp. 44-58, in course of translation), *J.*, XLII., p. 1049.

Minimum Noise Levels Obtained on Short-Wave Radio Receiving Systems (Abstract from *Proc. Inst. Rad. Eng.*, Vol. 25, No. 12), *J.*, XLII., p. 188.

Portable Wireless Stations (Abstract from *W.T.M.*, Vol. 42, No. 1), *J.*, XLII., p. 554.

Propagation of Radio Waves Over a Finitely Conducting Spherical Earth (Abstract from *Phil. Mag.*, No. 171, June, 1938), *J.*, XLII., p. 752.

Radio Emergency Procedure (Abstract from *Aero Digest*, Vol. 32, No. 3), *J.*, XLII., p. 481.

Short-Wave Wireless for Sailplanes (Abstract from *Luftwissen*, Vol. 4, No. 12), *J.*, XLII., p. 189.

Special Maps for Use with Loop Direction-Finders (Abstract from *J. Aeron. Sci.*, Vol. 5, No. 6), *J.*, XLII., p. 636.

Stability of Two-Metre Waves (Abstract from *Proc. Inst. Rad. Eng.*, Vol. 26, No. 5), *J.*, XLII., p. 636.

Stability of Two-Metre Waves (Abstract from *Bell Tele. Pubs.*, No. B-1077), *J.*, XLII., *J.*, XLII., p. **894**.

Some Aspects of Magnetic Recording and its Application to Broadcasting (Abstract from *J. Inst. Elec. Eng.*, Vol. **82**, No. **495**), *J.*, XLII., p. **480**.

The Theory of Diffraction Applied to the Propagation of Ultra-Short Wireless Waves (Abstract from *H.F.T.*, Vol. **52**, No. 2, August, 1938, pp. 58-62), *J.*, XLII., p. **1050**.

Transmission Theory of Plane Electro-Magnetic Waves (Abstract from *Proc. Inst. Radio Engineers*, Vol. **25**, No. 11), *J.*, XLII., p. **104**.

WIRELESS—DIRECTION FINDING

Air Track System of Aircraft Instrument Landings (Abstract from *J.A.S.E.*, Vol. **43**, No. 4, October, 1938, p. 18), *J.*, XLII., p. **1128**.

Application of Wireless to Aerial Navigation (Abstract from *Journal des Telecommunications*, Vol. 4, No. 11), *J.*, XLII., p. **364**.

Experiments with Ultra-High Frequency Antenna for Aeroplane Landing Beam (Abstract from *Proc. Inst. Rad. Eng.*, Vol. **25**, No. 12), *J.*, XLII., p. **188**.

An Improved Medium-Wave Adcock Direction-Finder (Abstract from *J. Inst. Elec. Eng.*, Vol. **81**, No. **491**), *J.*, XLII., p. **103**.

The Measurement of the Lateral Deviation of Radio Waves by Means of a Spaced Loop Direction-Finder (Abstract from *J. Inst. Elec. Eng.*, Vol. **83**, No. **499**), *J.*, XLII., p. **858**.

New Principle in Directional Antenna Design (Abstract from *Proc. Inst. Rad. Eng.*, Vol. **26**, No. **3**), *J.*, XLII., p. **481**.

Position Finding by Wireless (Abstract from *L.F.F.*, Vol. **15**, No. **8**, **20/8/38**, pp. 409-425), *J.*, XLII., p. **1134**.

Radio Direction-Finding on Wave-Lengths Between Six and Ten Metres (Abstract from *J. Inst. Elec. Eng.*, Vol. **83**, No. **499**), *J.*, XLII., p. **857**.

Short-Wave Adcock Direction-Finder (Abstract from *J. Inst. Elec. Eng.*, Vol. **81**, No. **491**), *J.*, XLII., p. **104**.

The Ultra-Short Wave Guide Ray Beacon and its Application (Abstract from *Proc. Inst. Rad. Eng.*, Vol. **26**, No. **1**), *J.*, , XLII., p. **245**.

Practical Use of Radio as a Direct Aid to the Landing Approach in Condition of Low Visibility, by Squadron-Leader R. S Blucke, A.F.C., *J.*, XLII, p. **483**.

WIRELESS—TELEVISION

Direct Viewing Type Cathode Ray Tube for Large Television Images (18in.×24in.) (Abstract from *R.C.A. Review*, Vol. 2, No. 3), *J.*, XLII., p. **481**.

German Television Exhibits at the Paris Exhibition (Abstract from *La Science et la Vie*, No. 246, December, 1937), *J.*, XLII., p. **105**.

Methods of Two-Way Scanning in Television (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 5), *J.*, XLII., p. **104**.

New Television System (Abstract from *Tech. Phys., U.S.S.R.*, Vol. 4, No. 9), *J.*, XLII., p. **189**.

A Unique Method of Modulation for High Fidelity Television Transmitters (Abstract from *Proc. Inst. Rad. Eng.*, Vol. **26**, No. **8**, August, 1938, pp. 946-62), *J.*, XLII., p. **1049**.

WOOD, *see* Materials—Wood.

WRIGHT—WILBUR

Twenty-Sixth Wilbur Wright Memorial Lecture, Materials of Aircraft Construction, by Dr. H. J. Gough, M.B.E., D.Sc., M.I.Mech.E., F.R.S., *J.*, XLII, p. **921**.

X-RAYS

Engineering Radiography (Abstract from *Siemens Revue*, Vol. **3**, No. **5**), *J.*, XLII., p. **567**.

X-Ray as an Aid in the Manufacture of Aluminium Castings (Abstract from *Metropolitan Vickers Tech. News Bulletin*, No. **620**), *J.*, XLII., p. **854**.

YOUNGER, PROFESSOR J. E.

Engineering Aspects of Commercial High Altitude Flying, *J.*, XLII., p. **1055**.

Printed in Great Britain by the Lewes Press (Wightman & Co., Ltd.), Lewes